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THE MEDICAL FOLLIES

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An Analysis of the Foibles of Some Healing Cults, Including Osteopathy, Homeopathy, Chiropractic, and the Electronic Reactions of Abrams, with Essays on The Antivivisectionists, Health Legislation, Physical Culture, Birth Control, and Rejuvenation.

By

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TO

DR. LUDVIG HEKTOEN

DIRECTOR OF THE MCCORMICK INSTITUTE FOR INFECTIOUS DISEASES, WHO, AS A PRÆCEPTOR, ENCOURAGED ME TO THINK CAREFULLY AND TO WRITE—AS APPEARS LATER

PREFACE

MOST of the essays here presented have appeared in such periodicals as the *American Mercury, Hygeia,* a Journal of Individual and Community Health, the *Haldeman-Julius Monthly,* and the *Journal of the American Medical Association.* All of these have been revised and amended for this volume. The introduction and some of the other essays have been prepared especially to give the book a more complete character.

MORRIS FISHBEIN.

Chicago, July 7, 1925.

CONTENTS

CHAPTER		PAGE
	PREFACE	7
I.	THE MEDICINE MAN—AN INTRODUCTION	13
II.	ELISHA PERKINS AND HIS WONDERFUL TRACTORS	16
III.	THE RISE AND FALL OF HOMEOPATHY	29
IV.	OSTEOPATHY	44
V.	CHIROPRACTIC	73
VI.	THE QUACKERY OF THE ABRAMS BOX	99
VII.	FADS IN HEALTH LEGISLATION	119
VIII.	BIRTH CONTROL: AN UNSOLVED PROBLEM	141
IX.	THE ANTIVIVISECTIONIST AND ANIMAL EXPERIMENTATION	150
X.	THE TRUTH ABOUT REJUVENATION	161
XI.	"PHYSICAL CULTURE" AND BERNARR MACFADDEN	172
XII.	THE BIG MUSCLE BOYS	182
XIII.	THE MEDICAL MISTAKES OF THE PRESS	204
XIV.	THE SCIENCE OF HEALING	215

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CHAPTER I

THE MEDICINE MAN—AN INTRODUCTION

In times of great stress, of pain or of sorrow the human being recants all that he may have learned of science and of truth and resorts to incantation and to prayer. He is ready to leap at any cure or suggestion that may be offered to him for the alleviation of his travail, never stopping to inquire as to the motives of those who would heal him or as to the basis on which their claims may rest. He is, in other words, but a poor weak mortal, whose judgment is modified by any strong circumstance that may chance to sway him.

Most primitive peoples explain disease as the seizure of the body by demonic or evil influences. Obviously the cure of disease, if the theory be accepted, rests on the conjuring of the demon from the body. Thus arose the belief in the healing powers of the priest craft and in the value of the incantation or the prayer that the priest might utter. Thus, too, came the determination of the remarkable virtues

that seem to be inherent in the laying on of hands, for the priests and the medicine men and the healers of all types soon found that the incantation or suggestion accompanied by physical contact was far more efficacious than the simple prayer in securing results.

As Maddox has indicated in his study of "The Medicine Man," the notion of a divine call to the work of representing heaven on earth is not peculiar to any one age, race, religion, or state of civilization. The healers of the savage tribes were convinced that their powers came to them from a divine source. It will not surprise us, therefore, to learn later that the leaders of our modern medical cults likewise believe themselves to be divinely inspired. The medicine man of the savage tribe was frequently marked by some mental or physical peculiarity, such as a hunchback, gigantic size, a powerful voice, or some similar divergence from normality. The leaders of our modern cults are also the possessors of magnetic personalities that mark them early in their careers as not quite usual in their habits of thought. Finally, the medicine man of the past was invariably a profound student of the psychology of his people; he knew the simple nature of their mental processes; he understood the importance of the fundamental urge of sex; he realized that a strong

claim is far more convincing than a weak one if neither can be proved.

From such an ancestry in the childhood of mankind came the great apostles of certain healing cults that have arisen in the United States during its brief history. Some of them have pursued a brief career and then passed into the limbo of forgotten things. The cults established by others have continued over half a century, bringing to the high priest and his disciples the plaudits of the credulous Babbittry, and something more than a good living.

CHAPTER II

ELISHA PERKINS AND HIS WONDERFUL TRACTORS

THE story of quackery is a never ending tale: theorist after theorist propounds new gospels of healing and passes at last into that beyond which remains the great unsolved problem. False prophet after false prophet arises, surrounds himself with fanatical followers, builds himself a sort of distinction while he lolls in the lap of luxury, and then departs this mundane realm, leaving it a sadder if not a wiser world. Indeed, as one reads the roll of the fakers he well-nigh becomes convinced of the doctrine of the transmigration of souls. The same old stories are told in the same old way, with only the addition of new wrinkles based on modern discoveries; the same old green goods is wrapped up and delivered to the yokelry, city and country bred, who deposit their shekels in the cash drawer; the same old come-on men sit at the feet of the master dispenser-of-hokum to learn the technique, that they too may go forth into the highways and byways and become minor prophets in their own right. Among the first of these was one Dr. Elisha Perkins, stu-

dent of Yale, well respected country practitioner of Norwich, Connecticut, inventor of the famous metallic tractors.

In 1796 electricity was much more a mystery than it is today. Of course a young fellow named Benjamin Franklin had done some kite-flying experiments, but no one yet dreamed of electric trolley cars or of incandescent lights or of the radio. Electricity was an unseen but powerful force, understood by no one, uncontrollable, undoubtedly having effects on metals and on human tissues. It is of such stuffs that nostrums and quackery are made.

On January 16, 1741, there was born in Norwich, Connecticut, a young man who, at the height of his powers, was six feet tall, of remarkable symmetry, kindly, sympathetic and magnetic; who could ride sixty miles a day "without the use of ardent spirits," and who could get along with three to four hours' rest at night. Of such stuff are great quacks, great evangelists, great physicians and great men made. Unfortunately no one has yet been able to determine whether Elisha Perkins was merely a somewhat deluded physician or actually a great impostor. Of his son's motives, there can, however, be little doubt.

Elisha Perkins, after completing his study of medicine, developed a satisfactory and competent practice. He became a well-recognized physician in

every sense that the word may imply. Indeed, he was chairman of the Windham County Medical Society, and one of their delegates to the meeting of the Connecticut Medical Society in 1795. These points are emphasized, for a strange similarity will be noted by the persistent reader in an account of the life of one Albert Abrams, who is dealt with later in this volume. It was as a delegate to the meeting of the state society that Elisha Perkins reported his discovery. The historians of the day report that it was received "by some with doubt and caution and by others even with contempt."

Briefly, Dr. Elisha Perkins figured out that metallic substances influence nerves and muscles. He noted a sudden contraction of a muscle, if the point of a metallic instrument came into contact with it during an operation. He observed that pain stops when a metallic instrument is used to separate the gum from a tooth previous to extracting the tooth. From this he derived the view that metals might have an influence if applied to the body externally. After experimenting with various metals he developed the famous tractors. These consisted of two rods of brass and iron, about three inches long, rounded at one end and pointed at the other. One side was half round and the other was flat; and on the flat side was stamped "Perkins' Patent Trac-

tors." The little metallic devices were made by Perkins in a small furnace concealed in the wall of his house by sliding panels. One was supposed to be composed of copper, zinc and a little gold, and the other of iron with some silver and platinum. As has been said, they were probably just brass and iron. In any event one authority asserts that they cost a shilling a pair to manufacture and there is plenty of evidence that they sold for five guineas a pair.

With these tractors disease could be drawn from the body, if one believed the claim of Dr. Perkins. In some cases it was customary to draw the instrument from the pained part to the extremities. In obstinate cases Dr. Perkins suggested the necessity of friction upon the part till there was redness with inflammation. It was important that the tractors be drawn downward, for drawing them upward might intensify the disease. For headache one could draw them from the skin of the forehead to the back of the head and down the neck, but Perkins was careful to add that "the headache that arises from drinking to excess, it does not always cure."

As has been said, the state medical society was inclined to be somewhat skeptical of the claims of Elisha Perkins; indeed, it was of the belief that the use of the tractors was essentially a revival of animal magnetism, the form of hypnotic suggestion in-

troduced by Mesmer, and known as Mesmerism. But Perkins was not daunted; he took his discovery to Philadelphia. There, as is told by Dr. Walter R. Steiner, in an excellent study of the life of Perkins, the Connecticut physician met with a most enthusiastic reception. All of the hospitals, poorhouses and infirmaries received him with open arms. "Diseases of the most obstinate nature, which had baffled medical art, were removed by the metallic tractors, and many persons of an advanced age, who had been crippled for years with chronic rheumatism, were, in several instances, perfectly cured."

We may pause here, for a moment, to remark that the healing of the crippled, particularly those who cannot walk because of rheumatism, is regularly accomplished and cited to the point of monotony by all of the variegated forms of faith healing. It was exactly such a case that received the attention of Emile Coué on his visit to the United States during recent years. A woman with chronic rheumatism, who had made no effort to walk in many years, arose at the urging of Coué and paraded across the stage of the theater, to the terrific applause of the credulous, who had yielded one dollar each to witness the miracle. A brief week later the ancient cripple's weakened heart tissue succumbed to her unusual ef-

forts and she departed her rheumatism and her terrestrial existence simultaneously.

Continuing with Dr. Steiner's narrative, we learn that Congress was in session when Dr. Perkins arrived in Philadelphia and that he took that distinguished body of thinkers by storm. It is reported that a gentleman of Virginia sold his plantation and took his pay for it in tractors. George Washington purchased a set for the use of his family and the Chief Justice of the United States, the Hon. Oliver Ellsworth, gave Perkins a letter of introduction to John Marshall, his successor. Ellsworth does not appear to have been altogether convinced; nevertheless he wrote: "In some cases the effects wrought are not easily ascribable to imagination, great and delusive as is its power."

We know today the amount of reliance that is to be placed on the testimonials of the great in matters of this kind. It is reported that Alice Roosevelt Longworth sells her portrait to a cold cream company for five thousand dollars. The Honorable "Billy Mason," congressman, testified to the virtues of Nuxated Iron, as did also the renowned Jack Dempsey. When Sanatogen, a glorified cottage cheese, was making its bow to the American public, artists, statesmen, tragedians and litterateurs vied with one another in singing its praises. Alas! today

this combination of casein and glycerophosphates no longer holds forth as the magic formula that will save the nation's great from neurasthenia! If only the public knew that testimonials for almost anything can be bought in bundles of five thousand from New York firms that profit by their purchase from derelict promoters of nostrums and by their sales to the exploiters of new devices, our possessors of fame and notoriety might hesitate to sell their letters of praise.

Elisha Perkins patented his tractors on February 19, 1796, and in May the Connecticut Medical Society expressed its opinion of Elisha in English as picturesque as it is forceful:

> VOTED, It having been represented to the Society, that one of their members had gleaned up from the miserable remains of animal magnetism, a practice of stroking with metallic Instruments, the pained parts of human bodies, giving out that such strokings will radically cure the most obstinate pain to which our frame is incident, causing false reports to be propagated of the effects of such strokings, especially where they have been performed on some public occasions, and on men of distinction; also that an excursion has been made abroad and a patent obtained from under the authority of the United States, to aid such delusive quackery; that under such auspices as membership of this Society

> and the patent above mentioned, the delusion is progressing to the Southward, which may occasion disgrace to the Society and mischief abroad; wherefore this Society announce to the public, that they consider all such practices as barefaced imposition, disgraceful to the faculty, and delusive to the ignorant; and they further direct their Secretary to cite any member of this Society, practicing as above, before them, at their next meeting, to answer for his conduct, and render reasons why he should not be expelled from the Society, for such disgraceful practices.

At a later meeting Elisha Perkins was expelled.

The excursion abroad, to which the state medical society referred, was a project of the son of Elisha Perkins, the gentleman concerning whose motives we have already expressed some doubt. Benjamin Douglas Perkins, Yale, 1794, left for England in 1795 and established a trade in tractors, occupying the house formerly occupied by the great scientist, John Hunter. In 1798 Benjamin published a volume dealing with the scientific aspects of his father's discovery. The book was called "The Influence of Metallic Tractors on the Human Body in Removing Various Painful Inflammatory Diseases, Such as Rheumatism, Pleurisy, Some Gouty Affections, etc., Lately Discovered by Dr. Perkins of North America and Demonstrated in a Series of Experiments and

Observations by Professor Meigs, Woodward, Rogers, etc., by Which the Importance of the Discovery is Fully Ascertained, and a New Field of Inquiry Opened in the Modern Sciences of Galvanism, or Animal Electricity, by Benjamin Douglas Perkins, A.M., Son of the Discoverer."

In this remarkable book it is pointed out that the tractors operate on the Galvanic principle. Their virtues are attested by ten members of the Connecticut Medical Society and by three physicians from other states. Nine clergymen also tell how the tractors brought them relief, and, as Dr. Steiner points out, one of the clergymen found "them also useful in picking walnuts." There were also testimonials from university professors, from governors of almshouses and from members of the legislature.

Learned persons with one-track minds can always be found who will endorse the most ridiculous hocus-pocus in matters of health. As is well known the most enthusiastic of the followers of Albert Abrams of our own day has been one Upton Sinclair, who has at various times endorsed half a dozen health fads and forms of cultism. Unmindful of the history of quackery, many physicians have expressed surprise that men who have made superlative successes in business, in the arts, and in the learned professions, become the victims of New Thought, Chris-

tian Science, Abramsism, and what-not. Credulity, unfortunately, is not limited to any single class. There is a pride of learning and accomplishment that is more dangerous than the most abject ignorance.

Before we proceed to the last stages of Perkinsism, however, let us recount the passing of the great Elisha. Yellow fever broke out in New York city in 1799. The period was that dark age in medicine before the commission headed by Walter Reed in Havana had shown that the disease is transmitted by the mosquito and before William Crawford Gorgas had shown that yellow fever could be stamped from the face of the earth by applying this knowledge. It required the discoveries of Pasteur and the magnificent investigations of the first quarter of the twentieth century to abolish this pestilence. In Perkins' time yellow fever was the most dread scourge of seaports and cities. So when the disease broke out in New York Elisha thought the time right for a demonstration of a medicinal formula which his fertile brain had evolved. His remedy was essentially a combination of vinegar and salt, which was administered in tablespoon doses, diluted with three parts of hot water. For three weeks Dr. Perkins prescribed this medicine assiduously and, as might be surmised, with but little success. Then he himself

succumbed to the disease and gave up the ghost on September 6, 1799.

About this time Benjamin Douglas Perkins burst forth with another edition of his book. There appeared also a volume which recounted certain Danish experiments with the tractors, translated from the Danish into German and thence into English. Not only had the Danish investigators tested the tractors on human beings but also on horses. To their report Benjamin Perkins added the records of one hundred and fifty additional English cases.

We shall see later, in discussing other cults, that the beginning of their decline is usually contemporaneous with attempts to apply them to the lower animals. A horse is, after all, a piece of property and not to be compared with a child or a wife or any other foolish human being. Even our government is much more ready to appropriate money for the control of disease among pigs and cows and horses than among human beings. Moreover, a horse never gives a testimonial; hence, perhaps, the term "horse-sense."

It has been customary for medical leaders, viewing the rise of Christian Science, osteopathy and chiropractic in our country, to sigh, almost regretfully, that the English never fall for such things. Of course the English did fall heavily for homeop-

athy; an English committee solemnly found that the principle underlying Abramsism might be sound, and the leaders of British medical organizations are beginning to worry about bone-setters, osteopaths and spinal adjusters. And England fell harder than any other country for "tractoration" as expounded by Benjamin Douglas Perkins. Testimonials were secured from all sorts of reverends including the chaplain to the Prince of Wales; Lord Henniker condescended to patronize the discovery and bought three pairs of tractors. Finally, a dispensary for the poor was opened, sponsored by a committee which included eleven vice-presidents, and solemnly dedicated at a dinner during which odes and poems were inflicted on those present.

Eventually one medical practitioner, John Haygarth of Bath, assisted by Dr. Falconer, made a pair of tractors out of wood and fixed them up to resemble the authentic specimens. With these they succeeded in producing what appeared also to be remarkable cures. They sent false specimens to other physicians, who forthwith reported astounding results. Then in 1803 Perkins, who had become a Quaker, left England with a profit of some fifty thousand dollars from the tractor business and established himself in New York as a publisher and bookseller. Honored and esteemed, Benjamin Douglas

Perkins died on October 13, 1810, at the age of thirty-seven; by 1811 people were already speaking of "tractoration" as one of the follies of the past.

There in brief is the story of one of the first of the great American quacks. Dr. Walter Steiner, whose collection of Perkinseana is probably the most complete available, is convinced that Elisha himself believed in the efficiency of the tractors but is inclined to think that Benjamin Douglas Perkins was somewhat of a rascal. As we shall see later, one is frequently at a loss to know just how far any apostle of cultism believes in himself and in his delusion and just how far he is willing to take the profits and a chance on the sincerity.

CHAPTER III

THE RISE AND FALL OF HOMEOPATHY

Diseases are cured, not by eloquence, but by remedies well and duly applied, of which, if any sage and discreet man, though he have no tongue, know well the proper usage, he shall become a greater physician than if, without practice, he ornament well his language.

—Cornelius Celsus (25 B. C.—50 A. D.).

I

If scientific medicine today is withstanding nonchalantly the assaults of a myriad of systems, cults and quackeries, it is merely repeating the history of other periods. The Eighteenth Century, for example, was predominantly a time of revolutionary systems and theories in medicine. There was the dynamico-organic system of Stahl, who believed that the soul was the supreme principle of disease. There was the mechanico-dynamic system of Hoffmann, teaching that life expresses itself in motion, and that all manifestations within the body are controlled by nervous spirit. The school of Montpelier taught that various organs possess individual life. Mesmer, prince of impostors, claimed that magnetic fluid poured from the

hand, and the Brunonian system asserted that it was only necessary for a cure to determine the grade of disease in accordance with the strength or weakness of the active irritation, and to adjust the right proportion of strengthening or weakening medicines to the case. Further, there remained from previous centuries phlogistic and anti-phlogistic theories, the view that all disease was caused by the impaction of debris and obstruction of the intestines, and half a dozen other assorted hypotheses.

At the end of the century scientific medicine had little of its own to offer. Pasteur had not discovered the bacteria, Lister had not given us asepsis, chemistry was only beginning to be a science, and the other fundamental medical sciences, anatomy, pathology, biology and physiology had just begun to sort out their facts from a welter of hypotheses. Drugs were known in abundance, but there was nothing comparable to the scientific pharmacology of today. All sorts of mixtures and combinations were used without reference to the effects that the ingredients of a mixture might have upon one another. When a positive action was obtained it was credited to the mixture and not to the individual ingredient responsible. Such was the scene just before 1800. Upon this stage there stepped a remarkable figure, Samuel

Christian Friedrich Hahnemann, born at Meisen in Germany in 1755.

After studying at Leipzig and Vienna, Hahnemann graduated in medicine at Erlangen in 1779, but he became dissatisfied with the practice of his profession and retired for reflection and study. In 1790 there came into his hands a materia medica written by William Cullen of Lanarkshire. Cullen was professor of medicine at Glasgow and Edinburgh and founder himself of a system of medicine which emphasized the importance of the nerves, and assumed that the brain was indissolubly united with the soul. Cullen, however, was a practical man; his therapeutics were simple and he deplored the excessive blood-letting which was a feature of the medicine of the time. It had already been attacked by Le Sage in "Gil Blas," by Molière, and by many others. Hahnemann read in the book by Cullen that Peruvian bark, the source of quinine, would cure malaria. This was true; quinine does cure malaria. But what did Hahnemann do with the observation? Unfortunately, he did not know that malaria is caused by a plasmodium which gets into the blood through the agency of the mosquito; the plasmodium was not discovered by Laveran until November 6, 1880. So Hahnemann evolved the theory that perhaps quinine cured ma-

laria because it would produce symptoms like those of malaria if given to a healthy man. He tried it on himself and it did. With this idea fixed in his mind, he returned to the practice of medicine in 1796, and his remarkable hypothesis became the basis of the system called homeopathy, expressed in the phrase *similia similibus curantur,* "like cures like."

This idea was not really original; it was essentially a revival of the old Paracelsian doctrine of signatures—like cures like—except that Paracelsus directed his attack toward the cause of the disease rather than at the symptoms. There are, in fact, some who assert that Milton, in his preface to "Samson Agonistes," was alluding to the same thing as practiced in his time:

> (Tragedy is) therefore said by Aristotle to be of power, by raising pity and fear, or terror, to purge the mind of those and such like passions; that is, to temper and reduce them to just measure with a kind of delight, stirred up by reading or seeing those passions well imitated. Nor is Nature wanting in her own effort to make good his assertion: for so in physic, things of melancholic hue and quality are used against melancholy, sour against sour, salt to remove salt humors.

The idea, therefore, was not new.

II

After his return to practice, it became Hahnemann's chief interest in life to propagate his theory. He began at once to write extensively, and it is significant that he did not confine his propaganda to the medical profession but addressed the public as well. Furthermore, it is a fact that he received all students, all applicants for knowledge of his methods, whether or not they had been previously trained in medicine. Then in 1810, he presented to the world the homeopathic bible, "Organon der Rationellen Heilkunde."

The Hahnemannian system of disease and its healing, as presented in this book, involved three main tenets: first, that diseases or symptoms of diseases are curable by particular drugs which produce similar pathologic effects upon the healthy body; second, that the dynamic effect or force of drugs is increased by giving them in very small doses, even diluted to a decillionth of their original strength, and lastly, that chronic diseases are a manifestation of a suppressed itch or "psora."

Hahnemann seems to have known practically nothing of, or to have been unwilling to recognize, the existence of those definite changes in the human body

that are associated with disease, and that are now included under the science of pathology. To him disease was chiefly a matter of the spirit. "Diseases," he said, "will not cease to be dynamic aberrations of our spirit-like life, manifested by sensations and actions." This spiritual theory, in which Hahnemann believed so implicitly, dominated subsequent homeopathic literature. The "dynamis" not only lay at the bottom of disease; it was also responsible for the power exerted by drugs in working cures.

Hahnemann's theory of "psora" or itch was essentially so preposterous that it began to be deserted even by confirmed homeopathists almost immediately. The "psora" was a miasm or evil spirit which pervaded the body and which ultimately manifested itself on the surface in the form of an eruption, or as a nodular growth, or as some other form of skin disturbance. It was Hahnemann's idea that the outward manifestation was a salubrious mechanism for the relief of the inner condition.

The Organon said:

> The only really salutary treatment is that of the homeopathic method, according to which the totality of symptoms of a natural disease is combated by a medicine in commensurate

doses, capable of creating in the healthy body symptoms most similar to those of the natural disease.

Then,

> By administering a medicinal potency chosen exactly in accordance with the similitude of symptoms, a somewhat stronger, similar, artificial morbid affection is implanted upon the vital power deranged by natural disease; this artificial affection is substituted, as it were, for the weaker similar natural disease against which the instinctive vital force, now only excited to stronger effort by the drug affection, needs only to direct its increased energy; but owing to its brief duration it will soon be overcome by the vital force, which, liberated first from the natural disease, and then from the substituted natural disease, and finally from the substituted artificial (drug) affection, now again finds itself enabled to continue the life of the organism in health.

In simpler terms, the conception was that the drugs induced a condition which was substituted for the actual disease, and that the body could easily get rid of the substitute. That, in brief, was the pharmacologic doctrine of homeopathy.

It will be remembered that Hahnemann arrived at

his method of treatment by observing the symptoms caused by a dose of Peruvian bark. In 1771 Albrecht von Haller had first suggested the method of testing the virtues of drugs by trying them on healthy human beings. The method was revived by Hahnemann, and called "proving a drug." Not only did medical men test drugs upon themselves under this proving system, but all sorts of other proving tests were made by all kinds of more or less qualified individuals. The results, as might be expected, were remarkable. One decillionth of a grain of table salt was found by an imaginative prover to produce on himself 1,349 symptoms. And while the dosages of the early homeopaths often reached the heights of futility, the preparations they used were sometimes of a highly poetic and romantic nature. In a catalogue of homeopathic remedies appeared such strange substances as *lachryma filia,* the tears of a young girl in great grief and suffering, used for great grief and suffering in young girls. Then there was *flavus irides,* the yellow ray of the spectrum, there were extracts of three kinds of pediculi, or lice, and anticipating the modern gland craze, there were extracts of all of the body glands then known. The strength of the drugs used may be estimated from the fact that a child in Gloucester County, Virginia,

took $8.00 worth of homeopathic medicine at a single sitting, the entire supply of the family for a year, and, not knowing that anything ought to happen, didn't have a symptom!

III

The physicians who were attempting to follow the wavering path of scientific medicine through the mass of medieval superstitions which beset it at that time suddenly found themselves placed on the defensive. Compared to the general medical practice of the age, the system of Hahnemann, though quite fallacious, had two things in its favor: it replaced mixtures of powerful drugs in large doses by small doses of simple ones, and it carried with it, as any new and revolutionary system always does, a powerful appeal to the lay imagination. Today Professors Meyer-Steinheg of Jena and Sudhoff of Leipzig, two of the world's greatest medical historians, assert that the influence of Hahnemann was, on the whole, certainly for the good. He emphasized the individualization of the patient in the handling of disease, he stopped the progress of half a dozen or more peculiar systems of treatment based on a false pathology, and he demonstrated the value of testing the actual

virtues of drugs by trial. It is probably true that any criticisms which might be brought against him in the light of later and better knowledge apply equally well against a large part of the other medicine of his time. Moreover, we must not hold against him the vagaries and exaggerations into which some of his disciples drifted.

What was the immediate success of homeopathy? In 1821, in Leipzig, the first homeopathic journal was published, the *Archives of the Homeopathic Method of Curing Disease.* In Austria, where homeopathy appeared in 1819, it was forbidden by an imperial decree, but it nevertheless made progress and the decree was revoked in 1837. It reached Italy and Denmark in 1821. Quin, a physician, introduced the method into Great Britain in 1827, but shortly thereafter medical opposition became strong and practitioners of homeopathy were denied the right to practice. This prohibition, after a long contest, was revoked, and by the eighties homeopathy was prospering. A homeopathic hospital was opened in 1887 in Liverpool on an endowment by Henry Tate, a sugar refiner. The first homeopathic dispensary had been opened in 1841, the second in 1867. In 1885 it was reported that the English dispensaries treated 78,881 patients, or 1,516 a

week. At the dedication of the hospital in 1887 a conference of homeopathic practitioners was held and the hope was expressed that a homeopathic surgeon would soon arrive to take care of work referred by homeopathic practitioners.

But nowhere did homeopathy flourish as it did in the United States. It was apparently brought to this country in 1825. The first homeopathic medical college was organized in Philadelphia in 1848, the next in New York in 1858. About 1880 the homeopathic practitioners were at the height of their influence. Many tales might be told of the battles within the medical fraternity to determine whether the homeopathic or the regular party should control. Indeed, there are whisperings of a session of the American Medical Association at which a phalanx of homeopathic practitioners assaulted the platform and dragged the speakers bodily from their perch. Homeopathic schools appeared in abundance. In 1880 there were in the United States, 72 regular medical colleges, 12 homeopathic colleges, and 6 eclectic colleges. In 1890 there were 93 regular, 14 homeopathic and 8 eclectic. In 1900 there were 121 regular, 22 homeopathic and 10 eclectic. And in 1900 the homeopathic practitioners, assembled in Washington, D. C., dedicated a monument in granite and bronze to:

Samuel Christian Friedrich Hahnemann,
Doctor in Medicine.
Hofrath
Leader in the Great Medical Reformation
Of the
Nineteenth Century
And
Founder of the
Homeopathic School.

IV

But from that year the influence of homeopathy began to decline steadily, its schools to close their doors or to merge with regular medical schools, and its practitioners to practice in increasing measure what they called "allopathic" medicine. What happened to bring about this remarkable and sudden change? Undoubtedly two influences both brought to bear on medical education, induced the ultimate collapse.

The first educational number of the *Journal of the American Medical Association* was published on September 21, 1901. It listed the medical colleges in the United States, the type of education and preliminary entrance requirements enforced in each school, and its provisions for didactic and clinical teaching. It showed that there were 124 regular medical schools, 10 electric schools and 21 homeo-

pathic schools, and it pointed out their qualities and their deficiencies. The poor schools began to wilt and fade—and many of the homeopathic schools were poor ones. By 1905 their graduates were fewer in number than in any year since 1880. In 1907 there were but seventeen homeopathic schools left, in 1908 but sixteen, in 1909 fourteen, in 1912 ten, in 1915, eight, in 1921, five, and in 1925 there remain but two, and one of these carries a low classification. Altogether during 1923 there were just forty-nine homeopathic graduates.

Publicity is a powerful tool. Students who observed the gradual decline of homeopathy began to seek regular schools; in fact, many a young man who had been doctored in his early youth by a homeopathic physician was advised by that very physician not to enter a homeopathic college. The fact is, indeed, that homeopathy died from within. The very disciples of Hahnemann, and most of the more enlightened practitioners of homeopathy since Hahnemann's time, when they came into practice, found their system unavailing in the face of serious illness. They then availed themselves of the right of every practitioner of medicine to use any treatment that may be for the good of his patient. They informed themselves of scientific medicine and prescribed drugs in doses that would work. The Amer-

ican Institute of Homeopathy, the official organization, finally adopted the definition: "A homeopathic physician is one who adds to his knowledge of medicine a special knowledge of homeopathic therapeutics and observes the Law of Similia. All that pertains to the great field of medical learning is his, by tradition, by inheritance, by right." This was essentially a desire to allow homeopathic practitioners to prescribe "old school" drugs in old school doses. It was a confession of inadequacy and failure.

While homeopathy, as a school, though not the individual homeopathist, had stood still and clung to its law of similars and to Hahnemann's unprovable theory, scientific medicine had been sweeping onward with steady, sure progress. Before such a fact as the inevitable response of the heart to an adequate dose of digitalis, any theory of dynamics and vibrations which called for splitting that dose into decillionth parts was bound to evaporate. Before the rapid effects of the satisfactory administration of mercury and "606," measurable by a Wassermann test, theories of "psora" and similars could not exist. The effects of efficient dosages are, as Celsus asserted, positive, sure, visible, convincing. They need no argument, they speak for themselves. Thus, by 1900, all that remained of the original homeopathy was the law of similars and the method of

using them. Otherwise homeopaths were prescribing diphtheria antitoxin and forgetting belladonna; they were practicing surgery; they were using full doses of drugs when they wanted to get action. It came down to this: that a homeopath was just like any other physician, except that he gave what were essentially nothing but placebos in minor conditions. When the regular medical schools began to raise their standards, the homeopathic schools had to do the same or confess their inferiority. And when they did the same, they lost their students, who had been attracted chiefly by their lower standards, and had to close their doors anyway.

Thus passed the homeopathic system. Thus, in fact, pass all systems in the practice of medicine. Scientific medicine absorbs from them that which is good, if there is any good, and then they die. Perhaps osteopathy has taught us something by its stress on massage; perhaps even Eddyism has made itself valuable by showing the value of suggestion in conditions affecting the mind. Others, such as chiropractic and Abramsism, teach only the ease with which delusions may be foisted on the public. The history of homeopathy is distinct and peculiar. It records the propounding and acceptance of a theory which, in itself wrong, nevertheless influenced the steps of a beginning science into paths that were right.

CHAPTER IV

OSTEOPATHY

Despite our remarkable advance of knowledge, nonsense is ever becoming bolder and more rampant; it is preëminently a time of fads and crazes, and the question as to how people are to be brought to their senses grows urgent.

—W. DUNCAN MCKIM.

For centuries deductions based upon hypotheses have served as the basis upon which the thought and conduct of the human individual have been interpreted.

—STEWART PATON.

I

"ON June 22, 1874," says Andrew Still, in his autobiography, "I flung to the breeze the banner of osteopathy." Before flinging it Still had been a free-lance doctor among the Shawnee Indians in Kansas. "I soon learned to speak their tongue," he says, "and gave them such drugs as white men used, cured most of the cases that I met, and was well received by the Shawnees."

The founder and promulgator of osteopathy, a most extraordinary doctrine of human disease and its causation, was born in Lee County, Virginia, on August 6, 1828. It appears likely that his great-grandfather came to Buncombe County, North Carolina, from England; the almost irrelevant fact

is cited merely because of the name of the county. The Still family was early American out of English and Irish, German and Scotch sources. Andrew Still was no accepter of authority even in his youthful days. He refused to attend one school because he and the teacher did not agree. The father of Andrew Still was a minister, doctor, farmer and millwright; his mother, according to Andrew, was "a natural mechanic, and made cloth, clothing and pies to perfection." Analyzing the statements it seems probable that Still discovered these unusual mechanical talents in his ancestry after he himself had developed his mechanical conception of the cause and cure of the ills that flesh may acquire or be heir to.

While traveling about on the frontier Andrew Still became interested in some bones dug up in an Indian graveyard. From his subtle cogitations on these remnants, he became convinced that the bones are the most important elements in the functioning of the human body, and that the backbone is the bone of all bones in the control of disease. On this point, in fact, he felt himself the recipient of a divine revelation, as he emphasizes repeatedly in his story of his life. "Have faith in God as an architect and the final triumph of truth, and all will end well," he says; and again: "Osteopathy is the greatest scientific gift of God to man." And still later he wrote:

> "Osteopathy is simply this: The law of human life is absolute, and I believe that God has placed the remedy for every disease within the material house in which the spirit of life dwells. I believe that the Maker of man has deposited in some part or throughout the whole system of the human body drugs in abundance to cure all infirmities; that all the remedies necessary to health are compounded within the human body. They can be administered by adjusting the body in such manner that the remedies may naturally associate themselves together. And I have never failed to find all these remedies. At times some seemed to be out of reach, but by a close study I always found them. So I hold that man should study and use only the drugs that are found in his own drug-store—that is, in his own body."

There is Andrew Still's conception of his revelation. The belief in private and confidential relationships with the Deity, as has been pointed out, seems to be an inevitable part of the credo of every healing cult that has interfered with the progress of scientific medicine. It is perhaps a necessary ingredient; it lights an inward flame which gives the founder and prophet the power to attract his great hordes of fanatical followers. After all, in this statement Andrew Still reveals the basis on which are founded the claims of all the healing cults, that they have

the power to cure disease. Here he merely expresses his conception of what has been called the *vis medicatrix naturæ,* the tendency of the body to overcome its afflictions.

In the spring of 1864 two children and an adopted child of Andrew Still died of meningitis. The mental shock to the father was severe. "I propounded to myself the serious questions," he says, " 'In sickness has God left man in a world of guessing? Guess what is the matter? What to give, and guess the result? And when dead, guess where he goes?' " In these questions are forecast the dissatisfaction of the man with the ignorance of his time so far as concerns the causes of disease and also his subsequent belief in spiritualism and his own alleged powers of telepathy. Today we know the cause of meningitis; we have the antimeningococcic serum that has changed a disease with almost one hundred per cent. of mortality to one that, seen early and properly treated, has a mortality of only some ten per cent. It is interesting to think that there might have been no osteopathy if the knowledge of the present day had been available for the family of Andrew Still.

The mechanical trend of the mind of the apostle of osteopathy is shown by his devotion to agricultural inventions between 1855 and 1870. He credits

himself with the discovery of the automatic reaper, telling that representatives of the Wood Mowing Machine Co. visited him and appropriated his idea. "Wood had the benefit of my idea in dollars and cents," he says, "and I had the experience." Then, too, he developed a mechanical churn.

II

Now it must be borne in mind that for some fifteen years at least Andrew Still had given little if any of his time to the diagnosis and treatment of disease. In his autobiography he tells us that his mind had been busy with anatomy continuously and that finally the great revelation came to him. Early in the sixties he had taken a course of instruction in the Kansas City School of Physicians and Surgeons, and had, no doubt, practiced for a while, but the intervention of the Civil War and his subsequent preoccupation with his inventions quite definitely removed him from matters medical. It appears that he tried to introduce osteopathy at Baldwin University in Kansas but the faculty turned him from the door. He went to visit his brother in Missouri, whom he found to be using "seventy-five bottles of morphine annually," and he "got him free from opium." Then he went to Kirksville, Missouri,

stayed three months, and in May, 1875, sent for his wife and family. In the preface to his autobiography the sage of osteopathy admits that he may be wrong at times as to places and dates, and at this time we do find him a little confused. He places great importance on a case seen and treated in Macon, Missouri, in the autumn of 1874. Here, it appears, he followed a woman with three children on the street and noticed that the child was suffering with what he calls a bloody "flux," so severe that blood was visible all along the sidewalk. He offered to help the woman home with the boy, and he describes picturesquely the course of the cure:

> "I picked him up and placed my hand on the small of his back. I found it hot, while the abdomen was cold. The neck and the back of the head were also very warm and the face and nose very cold. This set me to reasoning, for up to that time the most I knew of flux was that it was fatal in a great many cases. I had never before asked myself the question: What is flux? I began to reason about the spinal cord which gives off its motor nerves to the front of the body, its sensory to the back; but that gave no clue to flux. Beginning at the base of the child's brain, I found rigid and loose places in the muscles and ligaments of the whole spine, while the lumbar portion was very much congested and rigid. The thought came to me like

> a flash, that there might be a strain or some partial dislocation of the bones of the spine or ribs, and that by pressure I could push some of the hot to the cold places, and by so doing adjust the bones and set free the nerve and blood supply to the bowels. On this basis of reasoning I treated the child's spine, and told the mother to report the next day. She came the next morning with the news that her child was well."

The story possesses all of the features of all of the stories that dramatize the cultist to his followers. Here are the supposedly fatal condition horribly pictured, the sudden revelation, and the immediate cure. What could be more naïve than this pushing about of heat and of cold? And what story could be more ridiculous in the light of our present knowledge of the causes of such conditions as apparently afflicted the boy that Andrew Still describes? Indeed, if anything were lacking it is promptly supplied in the next phase of the story, namely, the alleged persecution of the prophet by the citizenry of Macon, Missouri.

The apparently miraculous cure of the boy with diarrhea naturally resulted in numerous calls for the services of the adjuster, and he modestly admits that he treated many cases with success. Here is his account of his subsequent persecution:

"I soon found myself in possession of a large practice. I was not so much surprised to discover that all kinds of fevers, summer and fall diseases could be cured without drugs as I was to hear that a Methodist preacher had assembled my brother's wife and children for the purpose of prayer. He had turned fool, or was born that way (as many hurried births have in all ages produced idiots), and the old theological blank poured out his idiotic soul to the Lord; telling him that my father was a good man and a saint in heaven, while he was of the opinion that I was a hopeless sinner, and had better have my wind taken away before I got any worse. He stirred up a hurrah and hatred in Macon, which ran to such a stage that those whom he could influence believed I was crazy. Children gave me all the road, because I said I did not believe God was a whisky and opium-drug doctor; that I believed when He made man that He had put as many legs, noses, tongues, and qualities as would be needed for any purpose in life for either remedies or comfort. Because of such arguments I was called an infidel, crank, crazy, and God was advised by such theological hooting owls to kill me and save the lambs."

The language of the prophet at its best is forceful. In the heat of his ire Andrew decided to move; he departed for Kirksville. "Long since Osteopathy has been given a big welcome in Macon City," he

says later. "They weep and mourn because they did not know a true philosophy, and help me build an infirmary there and make Macon the Athens of learning, in the science of Osteopathy, instead of the rival town in an adjoining county." So at Kirksville he stayed, practicing osteopathy and teaching it to his four sons. Finally in 1894 he secured the charter of the "American School of Osteopathy," the institution that was to deliver upon the people of the United States some thousands of the ignorant followers of the osteopathic system of diagnosing and treating disease.

III

The original divine revelation to Still was that the primary cause of every disease is some interference with the blood supply or nerve function, always caused by a dislocation of one of the small bones which make up the spinal column. This dislocation, he argued, brings about a change in the size of the little openings between the bones, through which the nerves and blood vessels pass. The result, according to Still, is pressure on the nerves and blood vessels, and disease at whatever distant point in the body the nerve or blood vessel may lead to. But this primeval osteopathy, handed down from heaven

almost fifty years ago, was a somewhat different osteopathy from that which exists today. The gradual departure from the original tenets by his followers was a disappointment to the inspired founder. In numerous lectures delivered during 1894 and 1895 he remonstrated with them for their growing heterodoxy, and in the *Ladies' Home Journal* in 1908 he was still "believing . . . that the mechanical displacement of the bony vertebræ constitutes most of the lesions causing disease." But even in his own school in Kirksville, Missouri, students were soon being taught to take care of a disturbance affecting the liver by adjusting the spinal column first, then waiting a week, and then adjusting the liver itself. Still was against all this. The arterial supply to the organ was solely responsible for its health, he claimed, and adjustment of the bones to release the arterial supply would cure whatever disease beset it.

The modern osteopath, while still clinging warily to these spinal adjustments, reaches out to embrace all that he can of modern medicine. He attempts electrical treatment, water treatment, massage, anesthesia, even surgery; and when the Harrison and Volstead acts were passed he made desperate efforts to secure the privilege of prescribing narcotics and liquor. The simon pure theory of Still denies flatly

that drugs may have any favorable effect on the course of disease, but the modern osteopath is apparently convinced that chloroform and ether will induce unconsciousness, that morphine and cocaine will relieve or deaden pain, and that the fermented juice of the grape has certain agreeable effects when administered in proper dosage, at proper times and to good ends. All this must be taken as evidence that the osteopathy of today is essentially an attempt to enter the practice of medicine by the back door.

IV

There was a time when the standard of medical education in the United States was a matter for despair. Half educated plowboys and section hands attended a few sessions of medical lectures and burst forth in the regalia of the physician. The medical schools were shambles. Scientific medicine makes no secret of this; it glories, however, in the fact that it did its own house-cleaning. In 1901, we reiterate, *The Journal of the American Medical Association,* under the editorship of Dr. George H. Simmons, began to publish the appalling facts regarding American medical education. That publication was like the finger of the housewife who writes her name in

the dust on the mantelpiece to show the maid where to wipe. The organized medical profession promptly appointed a special committee to investigate the medical schools, to establish standards, and to hold the schools up to those standards, once they were established. The weapon used to achieve all this was publicity. School after school, searched out and exposed, either met the standard or passed into limbo. The number in this country dwindled from almost two hundred to less than ninety. The proprietary medical school, conducted for the pecuniary profit of the professors, gave way to the endowed institution which spends on the student far more than his fees. No longer was it possible for those who could hardly read and write to emerge in two years with a medical degree. The American M.D. of today has had a high school education, two to four years of college preparation, four years among the laboratories, lecture rooms and clinics of a well-equipped medical school, and one or two years enforced attendance as an interne in a standardized hospital. Before he can minister to the sick in private practice he must also pass a State examination. The route is a long and difficult one. It is costly. That is one of the chief reasons why there are now osteopaths and other such nondescript healers.

But there are, of course, other reasons. With

the advance of medical research, the naïve belief in pills and philters with which the medical profession of the past was afflicted met a crucial test. There came a nearer and nearer approach to an actual science of medicine. Again the physicians did their own house-cleaning. They created a Council on Pharmacy and Chemistry to examine the claims made for all drugs, new and old, and to determine their actual virtues. If what was offered could not pass the test, it was put into an Index Expurgatorius and the facts were published. The public, catching this spirit from the medical profession, began to waver in its allegiance to powders and pills. It thus became psychologically receptive to the claim of the drugless healer that his "system" was superior to drugging. Many such healers went even further. Still, for example, claimed that drugs were not only of no value in the treatment of disease, but even that they were responsible for most disease.

V

Let us pause here a moment to consider this matter of "systems." If there is anything the normal American loves it is a "system." Consider the immense number offered to him month in and month out in the advertising pages of his favorite maga-

zines: systems of mind training, house decorating, salesmanship, motor repairing, mushroom growing, health building, muscle building, eyesight training—systems for everything. If you would see the preposterous lengths to which the business may be carried in the pursuit of health, study the pages of the popular physical culture magazines. Now, scientific medicine offers no such system. It aims, by the utilization of all available knowledge, to determine the cause of disease, and then, by the use of all intelligent methods, to benefit and heal the disease. It does not promulgate any theory or principle to the exclusion of established facts. It does not say, for example, that "all disease arises in the spine and all disease can be healed by manipulating the spine." Neither does it say that all disease arises in the mind and can be removed by manipulating the mind. No doubt the acceptance of such systems by what are said to be intelligent persons is based on the fact that while they are wholly fallacious they are essentially simple. Even a moron knows that when you remove the brake on a motor car the wheels can go round. And when you tell him that there are brakes in the spinal column which keep the blood from flowing freely, or the nerves from functioning properly, he thinks of the brake on the car, and is sure that the idea is right. Imagine that same type

of mind trying to understand how a tubercle bacillus, which he has never seen and of which he cannot conceive, makes a cavity within a human lung! As for such matters as the way in which insulin acts to metabolize sugar in diabetes, or the way in which salvarsan controls the insidious spirochæta pallida—to explain these things to him would be as hopeless as explaining the theory of the well-advertised Professor Einstein. Scientific medicine admits that there are diseases of the mind and diseases of the spine, and its practitioners treat the former by mind-healing methods and frequently the latter by braces and supports and other manipulative measures. But scientific medicine does not treat an abscess of the liver by adjusting the back, or a broken leg by attacking the mind. The great fallacy of all the "systems" of disease and their healing lies in this "all or nothing" policy. When that policy runs counter to demonstrable facts the result is invariably disaster.

VI

It was the pride of Andrew Still that a number of States had legally empowered the graduates of his school to practice osteopathy. It is our thesis that osteopathy as it is practiced today is essentially

an attempt to get into the practice of medicine by the back door. In 1917, for example, the Supreme Court of Washington convicted a licensed osteopath of practicing medicine without a license because he had treated diseased tonsils by administering an anesthetic, placing a snare around the tonsils and cutting them out with a knife, after which he administered stypticin to stop bleeding. The court said:

> A perusal of the successive catalogues of the schools of osteopathy will show that their teachings are gradually being expanded and that the more modern of them now teach in some degree much that is taught in the older schools of medicine. The parent school has been more marked in this respect than perhaps any of them. It now teaches that in childbirth lacerations, in certain types of congenital deformities, in certain kinds of tumors, etc., surgery must step in, and that surgery must be resorted to for the removal of tissues so badly diseased or degenerated that regeneration is impossible by the process of adjustment. But this advance is modern. In 1909, the time of the enactment of the medical act, it was not in vogue.

In fact, the laws of the various States which have attempted to regulate osteopathy have had a hard time of it to keep pace with the shifts of the osteopath in his attempt to break into the practice of

medicine. The Supreme Court of California, for example, told an osteopath who wanted to practice optometry that he was not licensed to fit glasses. He argued that his license to practice osteopathy under the medical practice act made him a physician and that the optometry law excepted duly licensed physicians. The Court ruled that the law permitted him to practice osteopathy and nothing more.

We have forty-eight States in the Republic and we have forty-eight different medical practice acts. The Federal Government encountered great difficulty in regulating the administration of narcotics because of this lack of uniformity. In some States osteopathy is, by legal enactment, the practice of medicine; in many others it is not. The Treasury Department, facing this conflict, became confused, and finally attempted to solve the problem by issuing the following order: "Osteopaths should be permitted to register and pay special tax under the provisions of the act of December 17, 1914, provided they are registered as physicians or practitioners under the laws of the State and affidavit to that effect is made in the application for registration. . . ." But this decision made the confusion worse than before. The word "practitioners" might include clairvoyants, Christian Scientists, seventh sons of seventh sons, and all the motley crew that prey on the weak and

ailing. It might—and often did—include osteopaths.

The evolution of osteopathic practice, as shown by these and many other court decisions and departmental regulations into something resembling the practice of actual medicine is probably the reason for the relatively slow development of the cult in the matter of numbers and for the outgrowth from it of the malignant tumor, chiropractic, which is apparently about to engulf the mother organism. Osteopathy, growing complex and "scientific," ceases to meet the demand for simplicity. Chiropractic falls into no such error. It appears to be essentially a reversion to the original hypothesis of Andrew Still, so simple that even farm-hands can grasp it; indeed, an osteopath, viewing with alarm the inroads of the new cult, has said that "chiropractic is the first three weeks of osteopathy."

In 1908 the adherents of osteopathy claimed that the mother school had graduated 2,765 students, that schools merged with it had shed upon the community another 1,181, and that there was a total of 3,946 osteopaths. According to the United States Census, there were in the United States, in 1920, about 5,030 osteopaths. There were at the same time according to the same figures, 144,977 graduate physicians and surgeons, and 14,774 nondescript

healers. Now, for a population of about 105,000,000 persons, that is certainly not a tremendous number of osteopaths. Apparently the public is finding it possible to stagger along fairly well with the attentions of the medical profession, which has been steadily raising its standards of education. It is, indeed, a confession of failure on the part of the cult that it should have departed from its original hypothesis and gradually embraced the adjustment of parts other than the spine, not to mention the use of water, heat and electricity, and of anesthetics, antiseptics and narcotics. In fact, a considerable number of its practitioners have even adopted the extraordinary hocus-pocus of Albert Abrams as a part of their diagnostic and therapeutic armamentarium. Imagine what anathema would have been hurled upon the latter group by Andrew Still! How he would have ridiculed this apotheosis of buncombe! At least there is something real about a jolt applied with the thumb and finger to the back or directly to the seat of a throbbing, inflamed organ. But think of what Still would have said, in his peculiarly exalted language, about the diagnosis of disease by hitching up a drop of blood on a piece of blotting paper to a crude and confused mass of electric wiring, connecting this inanimate, impossible electric jumble to a strange subject, and then per-

cussing areas of dullness on this subject, and from them diagnosing disease!

It was, indeed, a weakness of osteopathy that it had ambitions to be a science. When its schools increased their entrance requirements to demand a high-school education—usually on the insistence by legislators in the form of stringent practice laws—and when they extended their hours of study, the blacksmiths, barbers, motormen and beauty specialists who sought an easy road to healing turned by the thousand to the chiropractic schools, which demanded no preliminary education for matriculation and guaranteed a diploma to any aspirant who could pay their fees.

VII

Scientific medicine possesses today adequate records of its schools and its practitioners. In the offices of the American Medical Association in Chicago are all the pertinent facts about the medical colleges of the United States—the subjects taught, the hours, the teachers, the pupils. There is a card for every physician in America, and on it is recorded all that is known concerning his qualifications. As one Southern practitioner said on seeing the card devoted to his own record: "Doctor, they've got

things on that card that even my wife don't know, and I've been a married man goin' on forty years." Regularly all the medical schools are submitted to a rigid inspection. But nobody knows anything for certain about most of the osteopathic schools or osteopathic practitioners. Even granting that the facts presented by the schools themselves are reliable, hours of study do not necessarily mean hours of training. Truth and scientific facts are not guaranteed by the time spent in instruction but by the reliability of the subject matter taught. And what of the training of the teachers in the colleges of osteopathy: is it perhaps a case of the blind leading the blind? The truth of the osteopathic theory as to the causation of disease has never, of course, been established. If diphtheria bacilli of sufficient virulence and dosage are placed on the membranes of the throat of animal or man, the result is diphtheria. In their absence, no possible dislocation or distortion of bones, muscles, ligaments, blood vessels or nerves will bring about that result.

VIII

Here are two quotations from a report written by the editor of an osteopathic magazine; they refer to the death of his own son:

> Billie had diphtheria four days before we knew what he had. . . . I had never seen a case of diphtheria before; never even thought of looking at his throat. . . . Dr.—— was called the fourth day and diagnosed the trouble at once. He is an M.D.; has had wide experience; has had the training so many of us have not had.

And then later:

> I don't understand antitoxin; I can't understand how a poison can cure disease or neutralize poisons. Yet when the death rate is cut from 50 per cent. to 10 per cent., isn't it best to be a physician first, and an osteopath second?

Osteopathy, chiropractic, Couéism, Christian Science, every system of healing without regard to established fact, comes a cropper when confronted with the established proof of the diagnosis and treatment of infectious diseases. The case of Billie is an exposure of the fallacy that an individual may be safely permitted to practice a single branch of medicine without first undergoing complete instruction in all the fundamentals of medical science. But when the incompetent undergoes such a complete course of instruction there is revealed to him, alas, the un-

derlying lack of truth in the "system" or cult to which he has been addicted!

Physicians see almost daily in their practice the results of patients peddling their ailments among the variegated assortment of peculiar practitioners. Perhaps none of the cases which might be cited is more striking than the one described by a well-known Eastern neurologist:

> Recently I examined a boy, age 17, lying in bed, very weak, extremely emaciated, totally blind, barely able to swallow. The ophthalmoscope (the instrument which the physician uses to look into the back of the eye) revealed double optic atrophy (destruction of the optic nerves). The history of the case is briefly: failing vision over nine months, terminating in blindness last August; for several months in the spring and summer of 1920, very severe headaches and frequent attacks of vomiting, often when there was no food in the stomach, and repeated convulsive seizures limited to the right leg without loss of consciousness. It was easy to make a diagnosis of brain tumor; but the condition of the patient was such that surgical interference was out of the question. The diagnosis, which seemed perfectly clear, might easily have been made many months ago. The condition of the patient for many months was certainly grave and alarming, and might have suggested to anyone that it needed thorough investigation. During all these months, while the

vision was fading and blindness coming on, what did the boy receive? Treatment by an osteopath and then a chiropractor, and then treatment by another peculiar practitioner and still another chiropractor, and so on, but never an ophthalmoscopic examination.

IX

The autobiography of Andrew Still was published in 1897; it is a true piece of Americana, remarkable for the crudeness of its style, its florid diction, its religious frenzy and exaltation. It closes with testimonials and tributes solemn and poetical. But in order to get at a little more of the true inwardness of the man, one must consult some of his biographers of the osteopathic faith. "Practically, Dr. Still is a spiritualist," says E. R. Booth. And J. H. Sullivan writes: "I think the most beautiful thought Dr. Still ever gave voice to was that in which he said he believed each red corpuscle in the blood had an intelligence all its own, else how can one explain the fact of a certain red corpuscle journeying on and on, say in a peacock's tail feathers, and finally adding to the particular color, which we know to be a physiological fact." Thus may a master dispenser of hokum inspire his followers.

It is not surprising to find that Andrew Still be-

lieved himself possessed of mystical powers. "There are scores of well attested instances in which Dr. Still has shown his power of clairvoyance,—perhaps it would be better to say telepathy," says E. R. Booth. "In the case of Dr. Still he seems to have inherited this power, if such a thing is possible, from both sides of his family. . . . Most persons who have spent even a short time in Kirksville have heard stories of his power to divine what was taking place elsewhere."

Like many another prophet of healing Andrew Still was eccentric in his habits and in his dress. "Dr. A. T. Still, or as he was familiarly called by those who knew him best, the Old Doctor, was never a very particular man about his dress, or perhaps it would be nearer the truth to say that he was usually very careless about his personal appearance," says one of his followers. "This seems to be a characteristic of nearly all geniuses." Still, it appears, was fully conscious of the impression made by his habits of attire. While working at one time in front of his house, repairing the brick walk, he was accosted by two ladies who asked him if Dr. Still was at home. He replied in the affirmative and they stated their request to see the doctor. "If you want to see Dr. Still look at me," the great osteopath said, "but if you want to see a

fifty dollar suit of clothes and a 'plug hat,' mother will show them to you, if you will step in the house."

As has been seen he resembled all other leaders of healing cults in his impatience with believers in other "systems" of healing, and he saw no good in any religion except his own. "If because I denounce drugs you call me a Christian Scientist," he said, "go home and take half a glass of castor oil and purge yourself of such notions." "Every advance step in Osteopathy," he said on another occasion, "leads one to greater veneration of the Divine Ruler of the universe." And he resented seriously any insinuation that osteopathy obtained its effects only in so far as it was a system of massage. As to this he said:

> "Osteopathy absolutely differs from massage. The definition of 'Massage' is *masso,* to knead: shampooing of the body by special manipulations such as kneading, tapping, stroking, etc. The masseur rubs and kneads the muscles to increase the circulation. The Osteopath never rubs. He takes off any pressure on blood-vessels or nerves by the adjustment of any displacement, whether it be of a bone, cartilage, ligament, tendon, muscle, or even of the fascia which enfolds all structures; also by relaxing any contracture of muscle or ligament due to displacements, to drafts causing colds, to overwork or nerve exhaustion."

That was the final pronouncement from the osteopathic Athens of America.

X

Well, why do people go to osteopaths anyway? Don't they ever help anybody? People go to osteopaths because they have been directly approached through advertising, in which reputable physicians do not indulge. They go because some friend who has been aided by an osteopath, or thinks he has, has urged them to go. They go when physicians have failed them. Ah! yes. I grant you freely that physicians fail. There are diseases in which science can be of but little service, and if the doctor is honest he will tell you so. I know a woman who has been suffering three years or more with a gradually progressing case of paralysis agitans or shaking palsy. Three eminent neurologists told her that her condition was incurable; they prescribed a simple régime of life and told her to save her money for the invalidism of her remaining years. But during three and one-half years she has spent every cent of her income on massage, on electric treatment, on nature cures, and on osteopathy, and she is undoubtedly worse. And I am willing to admit that among those who treated her was a

physician who should have known better. The incompetent or unprincipled physician, licensed to practice medicine by a too complaisant State, is the greatest menace to scientific medicine—as great a menace as all the cultists put together.

Osteopathic or any other kind of manipulation undoubtedly produces, at times, temporary benefit, or the feeling of benefit. The old-time physician used to put his hands on the patient; he used to work him up a bit, while at the same time he encouraged him mentally. There are many who feel that the modern physician might practice a little more of this laying on of hands. But it does not require an extraordinary mentality to see how serious it is to practice merely the laying on of hands and the conferring of a temporary feeling of benefit when a child is beginning to strangle with the accumulated débris of a diphtheritic membrane, or when the life of a woman is being slowly sapped by an internal, malignant tumor, or when some previously uncautious man is beginning to show the first signs of paralysis and the delusions of grandeur associated with an early encounter with the spirochæta pallida of syphilis. These are surely no times for the laying on of hands; these are times for accurate diagnosis, and the speedy administration of the life-saving diphtheria antitoxin, the merciful

surgical knife, and the destroyers of spirochetes: mercury and salvarsan.

In 1875, when Andrew Still went from Kansas to Kirksville, he found a letter addressed to his brother Edward from another brother, the Rev. James M. Still of Eudora, Kansas, "stating that I was crazy, had lost my mind and supply of truth-loving manhood." Still's comment on this letter, taken from his autobiography, offers a remarkable sidelight on the motives of the founder of osteopathy. "I read it," says Still, "and thought, 'As the eagle stirreth up her nest, so stir away, Jim, till your head lets down some of the milk of reason into some of the starved lobes of your brain.' I believed Jim's brain would ripen in time, so I let him pray, until at the end of eighteen years he said: 'Hallelujah, Drew, you are right; *there is money in it,* and I want to study Osteopathy'!" The italics are mine.

CHAPTER V

CHIROPRACTIC

I

"THE spine is a series of bones running down your back. You sit on one end of it and your head sits on the other." A simple definition and one that is sufficient for the average man! But there is much more to the spine than that. If you don't believe it, ask any chiropractor. In a glib and rhythmical manner that indicates hours of study of what the salesmen call a selling talk he will tell you things about the spine that will astonish you. Imagine, then, the astonishment of scientific anatomists, physiologists, pathologists and physicians when these amazing views of the spine were first launched upon them by Andrew Still, the founder of osteopathy! It was only later that they were adopted by the chiropractors and elaborated into a comprehensive system of pseudo-medicine.

About 1894, or some twenty years after osteopathy first saw the light, the following incident occurred in Davenport, Iowa. The story was told under oath on the witness-stand by B. J. Palmer,

high priest of chiropractic and son of D. D. Palmer, its founder:

> Harvey Lillard was a janitor in the building in which father had his office at that time, in the Ryan Block at Davenport. Harvey came in one day thoroughly deaf. Father asked him how long he had been deaf, and he told him seventeen years. Father said, "How did this occur?" Harvey said, "I was in a stooped, cramped position, and while in that position I felt something pop, and heard it crack in my back." Father looked him over, laid him down on the cot, and there was a great subluxation on the back. Harvey said he went deaf within two minutes after that popping occurred in the spine, and had been deaf ever since, seventeen years. Father reasoned out the fundamental thought of this thing, which was that if something went wrong in the back and caused deafness, the reduction of that subluxation should cure it. That bump was adjusted, was reduced, and within ten minutes Harvey had his hearing and has had it ever since. He is now janitor in the City Hall of Davenport.

This little tale is inserted that the reader may see just how much credit is given to osteopathy by chiropractic for the idea on which the latter system, like the former, rests. As for Harvey Lillard's

deafness—if it was not imaginary—one can only surmise that it was of that order known as hysterical deafness, not due to any organic defect, and curable, as thousands of such cases always have been cured, by any strong suggestion, including the laying on of hands. The osteopaths will tell you that chiropractic is the first three weeks of osteopathy; the chiropractors will insist that there are vital differences between the original tenets of osteopathy and chiropractic, but no neutral student has ever been able to discover those differences. The younger Palmer told on the witness-stand how his father, confronted with his experience in the case of Harvey Lillard, arrived by pure logic at the conception of chiropractic. But there is some evidence that the elder Palmer, while practicing as a magnetic healer, also took a course down in Kansas with old Dr. Still. So much for the founding of chiropractic!

II

The explanation offered by the chiropractor to account for all disease is very simple, and hence well calculated to attract the minds of those who like to think for themselves in the absence of facts. When

the chiropractor tells his patient that the brake pressing on the nerve as it emerges from the spinal column keeps the nerve from transmitting the energy that makes the wheels of the body go round properly, the victim is impressed by what he calls "reason." Unfortunately for this "reason," the fundamental facts will not support it. A brake and a wheel are material objects that can be observed; the spinal column and the nerves that emerge from it are also material objects, but they cannot usually be observed. A man tries the brakes on his car and finds that they catch hold and the wheels stop. But let something go wrong under the hood of his car, in some of the internal workings that are beyond his ken, and he will have to take the word of an expert for the fact that the thing is wrong that the expert says is wrong. There have been, as we all know, motor mechanics who were not above taking a little advantage of the car owner's ignorance of its internal mechanism. There are also body mechanics who do not appear to be above taking advantage of the layman's ignorance of the anatomy of his spinal column.

The nerves that emerge from the spinal column are much smaller than the holes between the bones of the column from which they emerge. The space about the nerve is padded with fat and soft tissue.

The back may be bent into all sorts of angles and postures, and everyone has seen the acrobatic dancer of the stage assume such angles, and yet these nerves are not squeezed or damaged because of the padding with which nature has protected them. Professors of anatomy have dissected thousands of dead bodies and have been unable to find any spinal nerves pinched or compressed in the manner which chiropractors allege is responsible for disease. The X-ray has been used to search for the dislocations which the chiropractors assert are present, but those dislocations cannot be found. Indeed, substances opaque to the X-ray have been injected into the canal within the spinal column, and photographs taken later have shown the fluid passing around the nerves in a manner that would be impossible if these nerves were impinged on by the bony structures with which they are surrounded. Moreover, experiments conducted in California have shown that a force of 1,200 to 1,300 pounds, while it will fracture one of the spinal bones, will not dislocate it or cause it to press on the spinal nerves. Thus the fundamental dogma of chiropractic, that disease is caused by dislocations or subluxations of the bones of the spinal column, pressing on nerves, is simply a complete misrepresentation of the demonstrable facts. Any chiropractor who tells an in-

valid that he is ill for that reason is either willingly deluding the patient or deluding himself.

The action in the chiropractor's office is usually something like the following:

PATIENT—Are you the doctor?

CHIROPRACTOR—I am the doctor. And what's the little difficulty today?

PATIENT—Well, doc, it's this rheumatism I've been sufferin' with.

[*Of course it may be a cold, or a sore throat, or diphtheria, or diabetes, or almost anything else that has already been diagnosed, or that the patient, in his rough and ready manner, has essayed to diagnose.*]

CHIROPRACTOR—Well, strip off your things and get into the kimono.

PATIENT—How much are the treatments, doc?

CHIROPRACTOR—Two dollars.

PATIENT—[*Stripped, so far, of clothes only*]—All right.

CHIROPRACTOR—Well, I should say so. [*Rapidly runs fingers up and down patient's back.*] Why, here's a subluxation of the third, fifth and ninth, and almost a lateral curvature. [*The figures might just as well be first, seventh and twelfth.*] Get up here.

[*The patient mounts a leather-covered board with pillows at each end, that depresses the*

spine. Then the chiropractor gives the patient a push in the back, using one hand, two hands, and sometimes the knee, according to what he thinks the system will stand. There are court records of fractures of the bones brought about by this gentle manipulation, known as the Chiropractic Thrust.]

PATIENT—Go a little easy there, doc.

CHIROPRACTOR—We've got to get these little dislocations back into place. Now turn over on your back. [*The chiropractor now jerks the patient's head until his neck cracks or pulls his leg, depending on the particular school of chiropractic in which he was instructed.*]

PATIENT—Doc, I heard that crack. I think I feel better.

CHIROPRACTOR—Well, yours is a pretty difficult case. Those bones may slip out again. It may take a series of treatments. Lessee, this is Chuesday; come in about Thoisday. Yeh, make it Thoisday an' bring a kimono. I'll give you a locker for it. Yes, two dollars for the treatment an' a dollar rental for the locker.

Thus chiropractic diagnosis and treatment. Disease is caused by certain bones of the spine impinging on certain nerves. Disease is cured by pushing those bones off those nerves until by some unknown mechanism of physiology they are persuaded to stay off.

III

The "fountain head" of chiropractic is at Davenport, Iowa, and B. J. Palmer is its prophet. It is not always well to go directly to an individual for an evaluation of his attainments, but Palmer explained his on the witness-stand some years ago, and we may accept the record as representing the most that he could give himself. On December 22, 1910, a chiropractor was placed on trial in Milwaukee and Palmer appeared in his behalf. In the course of his testimony, Palmer told the court that he had learned chiropractic from his father, that he was at the time of testifying twenty-eight years of age, and that at the age of twelve he was in the field as a practitioner of this strange art. He had attended common grade-school at Davenport, Iowa. He said in one place, "At the age of eleven I was kicked from home, forced to make my living," and in another that his education had been chiefly "common sense" and "horse reasoning." Beyond that he had "graduated from the Palmer School of Chiropractic under my father" and had "studied art some in Chicago, not very long . . . landscape work, painting. . . . I have studied music."

Now as a result of all this delving into knowledge, with what degrees did Palmer decorate himself in

the annual announcements of his college? It appeared that he had the degrees of D.C. and Ph.C., conferred by the Palmer School of Chiropractic, which he owned. And after his name appeared: "Is a student, author, lecturer and teacher on any phase of chiropractic philosophy, science or art anywhere any time." He was also described as the developer of the philosophy, science and art of chiropractic; author of many volumes on the science, art and philosophy of chiropractic; secretary and philosophical counsel to the Universal Chiropractors' Association, honorary member of the German-American Chiropractors' Association, secretary of the Iowa Chiropractors' Association, counsel for the P. S. C. (Palmer School of Chiropractic), and manager and assistant editor of the *Chiropractor*. And it was further said of him that "one of his aims in life is to be a Therapeutical Idol Shatterer" and "destroyer of superstitious ideas regarding man, and replacer of practical studies."

From the evidence in the case cited it became quite clear that in the Palmer School, as conducted by the elder Palmer, anyone could embark on the study of chiropractic. It was not even necessary that he be able to read and write. The standard, by 1910, was higher. No primary education was required, but B. J. Palmer said that "each student

must have a brain and know how to use it." Every student was required to spend twelve months, totaling twenty-seven hundred hours, in the college before he got a diploma. If he passed his examinations with a degree of 98 per cent. he was awarded the degree of Ph.C. But when Dr. Thomas F. Duhigg reported the results of an inspection of the schools of Davenport for the Pennsylvania Bureau of Medical Education and Licensure he pointed out that in 1915 the three colleges which had developed in that capital of chiropractic were really little fit to educate anybody in anything. None had a library, a hospital, a laboratory worthy of the name, post mortems or capable teachers. To these institutions came students without preliminary education, and after one year of study in miserably equipped buildings, consisting mostly of lecture halls and demonstration rooms, they were turned loose to minister to the sick.

Low as were the requirements of the fountainhead school and some of its Iowa offshoots, chiropractic colleges established by exploiters in other states were not even one half so particular. The following letter, bearing all the evidence in its writing and general appearance of having come from an ignorant and illiterate woman, was sent from a town

in Texas to the "Carver Chiropractic College" in Oklahoma City:

"*Sirs, Mister Kirpatic School.* I want to rite letter an see if i can be kirpatic dr. if you can make a kirpatic dr. for how much money i got about 2 thousend dolers that my husband got when he died from the insurance company that paid 3 thousand dolers but I had ode lot of money and funerl an everything cost more 1 thousand dolers. Could i be kirpatic dr., for this much money about 2 thousand dolers in bank. I been nurse some and help drs. and kirpatic dr say i am strong and pretty an i make a good kirpatic dr. since my husband die I can live with my ant here in ———————— but it is my money in bank. My ant say i have not been in school enuff but my father live on ranch an work wen I was girl and I go to school 3 years. My husband die with apensitis in his side an drs. say it to late after they operate an lots of pus an kirpatic dr. say he could cure him if he had called him but i did not no it that is why i did not send for him an i want to be kirpatic dr so i can cure apensitis sometime. I been ritin some other kirpatic schools and kirpatic colleges but they send me books and dont anser my letter so i can no. if you will anser my letter an tell me if you can make me a kirpatic dr. on how much money i got an how

long it will be if i am a widow 24 years old and i will come right away.

"Mrs. ———————— Texas."

Had this erudite document been received by any medical school in the United States the writer would have been informed kindly but firmly that she was obviously not the possessor of sufficient fundamental learning to warrant her undertaking the diagnosing and treating of human ailments as a life occupation. The Carver Chiropractic College, however, was in no way subject to any qualms. After all two thousand dollars is not to be sneezed at. Following is the Carver reply:

"*Dear Madam:* Your most interesting letter stating that you were very much interested in the study of the subject of Chiropractic and reciting the incidence [*Sic!*] leading to the death of your husband and the information that you had received from some of your Chiropractic Doctor friends that his death was all unnecessary, had a Chiropractic Doctor waited on him instead of an M.D. I think you are entirely correct, however, that is an incidence. [*Sic!*] That is a condition we must all meet. While it grieves us to give up the ones we love, your husband showed forethought in providing for you in a way and I can not think of a better

means to put your money to than preparing yourself for a real life's work.

"Chiropractic is a profession based upon a science. While your education may be limited you have the intelligence and the determination and sufficient education to understand the English language you would have no difficulty in getting a knowledge of this subject so that you could go out and practice and be efficient. You can enter at any time and in eighteen months, upon making your grades, can be graduated. If you can come at once it will be well for you to do so, but if not, make your arrangements to be here sure by the first Monday in April. Living conditions here are very reasonable. You will find no difficulty in getting good and economical living quarters. We will do what we can to help you when you come. You will find the student body a fine working, virile body. Oklahoma City is a city of 125,000 which offers the advantages of a city of this size and you will enjoy life while here.

"I am sending you a catalogue under separate cover which will give you all the information I have not given you in this letter.

"Trusting that we will hear from you or see you in a short time, I am.

"Very truly,

"CARVER CHIROPRACTIC COLLEGE

"H. E. Thompson."

It would be possible to marshal innumerable examples of the crudity of chiropractic literature. An analysis of any considerable mass of this material reveals at once the fact that such of it as is sound from a grammatical point of view is florid with the phraseology of the writer of modern advertising blurbs; that which has not had such censorship is almost invariably full of misspelled words and specimens of grammar that would excite the derision of a fifth grade scholar from any elementary school. The acme of chiropractic diction was no doubt reached in the following definition which constitutes a part of the act regulating chiropractic signed in 1920 by the Governor of New Jersey.

> DEFINITION OF CHIROPRACTIC: The term chiropractic when used in this act shall be construed to mean and be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death, the science of the cause of disease and art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other by hand, thus correcting all subluxations of the

articulations of the spinal column, for the purpose of permitting the recreation of all normal cyclic currents through nerves that were formerly not permitted to be transmitted, through impingement, but have now assumed their normal size and capacity for conduction as they emanate through intervertebral foramina—the expressions of which were formerly excessive or partially lacking—named disease.

When Dr. George Dock visited the fountain head of chiropractic in 1921, he found the business of training practitioners of chiropractic a most flourishing one. The original plant of Palmer had expanded into a series of buildings devoted to the teaching of some three thousand aspirants annually, at a cost of several hundred dollars each. But the large buildings, Dock reported, were still not devoted to teaching any of the fundamental facts of physiology, pathology, bacteriology or even hygiene and sanitation. There were classrooms seating from 300 to 500 students in which the lecture method was used to force home the ideas of B. J. Palmer, Mrs. Palmer and their colleagues of the faculty. The walls bore trite epigrams and aphorisms earnestly beseeching the students to give ear to the words of the prophet. There were a cafe-

teria, a printing plant, a private branch post office and express service, a room containing specimens of bone lesions and a roof garden. More recently there has been established Station WOC, which radios chiropractic philosophy to prospective patients, the while it dispenses the usual form of aërial entertainment. This station is more egregious in its splendor, Harry Hansen informs me, than anything he has seen except the station conducted by Roxy in New York.

It would seem that the chiropractic course has now lengthened—presumably with the advance in chiropractic knowledge—to three years of six months each, although arrangements may still be made to take the whole eighteen months straight through. In this course, alleged to be of 5,335 class hours, the student is taught the philosophy of chiropractic, how to use the chiropractic thrust, how to adjust patients, something about obstetrics, and more about salesmanship. With from three to five thousand students annually paying from $350 to $500 each, it can be readily seen that the business does not exactly lose money.

Consider now the length of the terms of the ordinary medical school, the expensive equipment of its laboratories, and its large staff of professors in the various fundamental branches and medical

specialties. At once it will be realized why the medical school requires state or philanthropic support for its maintenance, and why the ignorant and unequipped aspirant who wants to embark on a career of healing will choose chiropractic, with its eighteen months of lectures, instead of medicine with its preliminary high school and college education, its four years in the medical school, and its one to two years of interneship in a hospital. Incidentally, in the medical schools, there is no course in salesmanship.

As may well be imagined, chiropractors have multiplied. And as they have multiplied, so also have chiropractic schools. In 1920, B. J. Palmer made a speech at a convention of chiropractors in Butte, Montana. The astute B. J. was a little incautious, or perhaps the wine of fame had gone a little to his head. For he said:

> Our school back at Davenport is established on a business and not a professional basis. It is a business where we manufacture chiropractors. They have got to work just like machinery. A course of salesmanship goes along with their training. We teach them the idea and then we show them how to sell it.

This phase of chiropractic education has become more and more important. Indeed, advertising concerns have been formed for no other purpose than to aid the chiropractor in reaching his prospective patients. One such organization in Indiana is frank:

> To advertise inside the chiropractic, medical and truth laws, requires some adroitness, some ingenuity of expression, some more than common ability as a wordsmith.

The advertising matter of the exponents of the chiropractic art has provided amusement to thousands since first it burst upon the American scene. In 1921 the Idaho Falls *Times-Register* displayed the announcement of the Busby Chiropractic Specialists. It was headed in black-faced type: "Why His Wife Left Him." It told of the case of one Jack who "never had a smile for his wife" and "was grouchy with the baby." Mrs. Jack thought he had ceased to love her because he desired to sleep alone. As a matter of fact, the Busby Chiropractors inform us, he did love her "but, due to nerve pressure in the spinal column, he was not normal sexually." Mrs. Jack did not know this and in time she left him. "A happy home could have been made if he

had gone to the Busby Chiropractic Specialists and had those vertebræ adjusted to normal."

The pleasant little item that has been cited appeared on the "Society and Personal" page of the paper as being, perhaps, especially suitable for home reading. It is matched only by the chiropractic testimonial for which the Chicago *Tribune* vouches:

> "Dear Doctor.—Before taking Chiropractic and Electric treatments, I was so nervous that nobody could sleep with me. After taking six treatments anybody can sleep with me."

A few years ago the press made much of the story of the "talking girl" of Waukegan who had been cured after talking seven days and nights. Medical practitioners, it was stated, had failed and then the chiropractor had achieved a successful result. It made a good newspaper story, especially for those newspapers that saw in it the opportunity to suggest to the chiropractic fraternity that their business had been given a magnificent boost in the news columns, and that it was highly desirable that they should add to this free advertising momentum an additional urge through the advertising pages. Rate card enclosed! Briefly the child did not suffer from so-called "talking sickness"; the alleged adjustment of

the spine did not "cure" the "sickness" and, finally, the child had not "completely recovered." The case was one of epidemic encephalitis, with a temperature ranging between 99 and 103 and active delirium, inequality of the pupils and strabismus. The improvement was gradual and that incident to the ordinarily observed progress of the disease. As shown by the case record, the chiropractor's "treatment" did not modify the course of the disease. The "talking" had ceased at intervals previous to his visit and continued at intervals after his "treatment." But the publicity given the case offered great opportunities for advertising, and advertising is an important part of the chiropractic curriculum. In fact, the child never completely recovered from the disease.

IV

It is an aphorism that where there is money there is power. Expensive legal organizations were early established for taking care of the chiropractor who fell afoul of the laws governing the healing art. Funds were established for releasing him when he chanced to be the victim of an enforced rest behind the bars. The usual committees for lobbying protective legislation through State and national legislative bodies began to function—and it must be said

for them that they have functioned efficiently in most cases. Already chiropractic is legally established in many States, and apparently immune to prosecution in those where it still flourishes without legal warrant.

In the meantime, B. J. has not been idle. His fertile mind saw that chiropractic must grow if it was to survive. In 1910 he testified that he would not adjust the vertebra of a dog for a stomach-ache or yelping at night. "I think I would use a shotgun in that case," said B. J. But in 1921, chiropractors were adjusting mules that refused to get up and cows that were somewhat swelled. But in this bright land of the free trifling with the health of the animal seems to be a much more serious matter than offering treatment to one's fellow citizens. Chiropractic veterinarianism has not yet become popular.

Those who have taken at least a casual interest in medical quackery will remember that one Albert Abrams, of California, some years before his death propounded an entirely new method of diagnosing and treating disease, the same having to do with certain vibrations, currents and ohms, and a mumbo-jumbo of pseudo-electrical nomenclature. The osteopaths, struggling against the flood of chiropractic sewage which threatens to engulf them, saw in the Abrams method an opportunity for a new lease of

life. Many osteopaths hailed its coming with shrieks of happiness, both in the public press and directly to their clientèle. And the exceedingly clever Dr. Abrams, knowing the superior flavor that attaches to exclusiveness, announced early in his exploitation of the "oscilloclast" and the other oscillating devices with which his name was connected, that their use would be limited to physicians and osteopaths. The humble chiropractor was to be excluded.

Now, the astute B. J. Palmer is not averse to taking a leaf from some other man's book. As has been mentioned, his esteemed ancestor, the magnetic healer, adopted certain principles promulgated by Dr. Andrew Still. So B. J. suddenly appeared on the horizon with a little device of his own called the "neurocalometer"—"the little wonder instrument which so accurately locates impinged nerves." B. J. is too wise to discard chiropractic ideas in favor of any theory of vibrations, and thus to sacrifice the identity of his hereditary science. But he does develop "a little wonder instrument" to put on the spine to tell the chiropractor where to do his pushing. In a letter issued from the chiropractic fountain head on December 15, 1924, a prospective student was urged to enroll promptly in order to take advantage of current prices on this device:

> The neurocalometer is not sold, but is leased for a period of ten years. As you may know, the original lease price for ten years was $620, soon increased to $1,200, later to $1,500, and then to the present price of $2,200, with the prospect of an increase at an early date to $3,000.

But if the aspirant for chiropractic honors would enroll in the January, 1925, class at Davenport (either cash or deferred payment), he was told, he could get a neurocalometer with his diploma, or even six months later at the current lease price. All he had to do was to pay $200 down and then $50 a month for sixteen months. The neurocalometer is simply one of those sensitive little electro-thermal devices called thermopiles which produce a weak electrical current with any change of temperature. B. J. says it shows such a change when the nerve coming out of the hole in the spinal column is being pressed upon. But apparently he hasn't been able to convince all the rest of the chiropractors that the device is a scientific one. Here and there previous graduates of the Palmer School, as well as chiropractors of other educational ancestry, have begun to object to its intrusion into the field. Here are the resolutions adopted by the Hoosier Chiroprac-

tors' Association, printed in its *Central States Bulletin:*

> *Whereas,* apparently in order to intimidate chiropractors, to hold a monopoly upon the chiropractic profession, and to increase his own personal fortune by perhaps two millions of dollars, B. J. Palmer has and is attempting to force the lease of an instrument called the neurocalometer upon chiropractors who in turn are required to extort from their patients an exorbitant fee for its use;
>
> *Whereas,* the neurocalometer has been carefully examined and tested by members of this Association, and found to be merely an instrument to be used to enable the user to increase his charges, which increase in his income has been boasted about by many of the users;
>
> *Whereas,* by these tests which were made without prejudice or favor, it has been found that said instrument cannot in any way be relied upon, neither does it add in the least in rendering more efficient chiropractic service, nor can any advantage to the patient be accomplished by its use;
>
> *Whereas,* the statements of B. J. Palmer since the introduction of said instrument have been damaging and apparently made with malice aforethought;

Therefore be it resolved, that we, the members of the H. C. A. do hereby condemn the use of the neurocalometer;

Be it further resolved, that we go on record as warning all chiropractic patients of the inefficiency of the neurocalometer and against the compulsory exploitation of prices by those chiropractors employing the use of said instrument;

Be it further resolved, that one copy of the resolution be sent to B. J. Palmer and that we hereby authorize the publication of this resolution when deemed proper by chiropractors.

And the editor of the publication continues:

The issue is clear cut. Palmer has made the division, it is Palmer and one thousand chiropractors against the field. Every chiropractor must take his stand and choose his side. It might further be added that not all of the thousand will remain put to the neurocalometer idea. Already reports are current that suits have been filed for the return of the money paid on the lease; reports that chiropractors are returning the machines because they will not do what is claimed. . . . Had only a few purchased the leases, B. J. would have had little ammunition and chiropractic would have been little harmed from his ruthless onslaughts. Every time he fails to sell a lease it means about

$2,000 less for him to use in his national advertising by way of radio, magazines, etc. A day of adjustment in the future is certain.

There is a story of a woman with a mean husband who returned home one day to observe the husband circling rapidly around the house pursued by a voracious grizzly. The lady commented on this spectacle: "Go it, husband! Go it, bear!" One can think, too, of various proverbs of the past relative to canine masticating canine, of the classic felines of Kilkenny, and what not.

It has been said that osteopathy is essentially a method of entering the practice of medicine by the back door. Chiropractic, by contrast, is an attempt to arrive through the cellar. The man who applies at the back door at least makes himself presentable. The one who comes through the cellar is besmirched with dust and grime; he carries a crowbar and he may wear a mask!

CHAPTER VI

THE QUACKERY OF THE ABRAMS BOX

ALREADY passing into the oblivion that is the terminus of most leaders of medical quackery, Albert Abrams, during his career attracted world-wide notoriety by the unusually bizarre character of his methods. He was born in San Francisco in 1864. According to available records, he attended the University of Heidelberg, Germany, and graduated in 1882. The story of his career in brief as told by himself in "Who's Who" indicates quite an average medical existence until 1910. About ten years after his graduation, he became professor of pathology in the Cooper Medical College in San Francisco, holding the position from 1893 to 1898. His earnestness and intelligence had apparently been recognized by the California State Medical Society in electing him vice-president in 1889 and he had been made president of the San Francisco Medico-Chirurgical Society in 1893. Coincident with his recognition as a pathologist, he began to write profusely not only on scientific topics, but also a sort of medical belles-lettres which were considered quite

clever for their day. They were somewhat satirical in tone and attracted wide attention. In 1909 he published a work called "Spinal Therapeutics," and in 1910 a volume on "Spondylotherapy," which two books constituted his first definite departure from medical orthodoxy. In creating spondylotherapy, Albert Abrams evolved the peculiar hypothesis that the reflex centers in the spine could be stimulated by constant, rapid percussion or hammering. In reviewing his book, *The Journal of the American Medical Association* called attention casually to the fact that this might be considered an attempt to give the general medical men something akin to osteopathy and chiropractic. At any event, Dr. Abrams soon began to exploit his idea, giving courses on spondylotherapy in various parts of the country at $50 per course and calling the attention of physicians to his methods by various types of advertising, just within the fold of ethical procedure. In 1922, after Abrams had conceived his remarkable scheme of electronic medicine, spondylotherapy courses of one month each advanced to a fee of $200 per course. At the time when he first began to promote his conception of spinal percussion, he founded the American Association for the Study of Spondylotherapy, of which he naturally became president and later honorary president.

It is not at all unusual for medical cults to organize themselves promptly for efficient salesmanship and exploitation of their wares. It must be pointed out, however, that this is not the same thing as the organizing of scientists into bodies that meet once each year for the interchange of advance in scientific knowledge.

A few years ago, apparently having percussed the back to the fullest extent of what it would yield monetarily, Dr. Albert Abrams turned the patient over and began to percuss the abdomen. For many years the art of percussion has constituted a significant part of the practice of physical diagnosis. Indeed, Auenbrugger, who evolved the science of percussion more than a century ago, had shown physicians that various parts of the body when struck give off a resounding tone or a dull tone, according to the type of tissue that lay underneath. The method had been used to great advantage since that time for the diagnosis of such diseases as pneumonia, tuberculosis, enlargement of the heart, collections of fluid in the lungs or abdomen, and similar conditions. However, Dr. Abrams did not confine himself simply to percussion of the abdomen. He utilized all of the mystery and psychic awe that are inherent in electric apparatus, particularly the radio. Instruments were developed beside which a

Goldberg cartoon is simple indeed. In brief, one secured from a prospective patient a drop of blood upon a piece of filter paper and placed this in an apparatus called a "dynamizer." This dynamizer was in turn connected with a rheostatic dynamizer from which wires passed to a vibratory rheostat, which finally was connected with a measuring rheostat. But in order to introduce a variable factor in the operation of this extraordinary combination of wires, coils, batteries and what-not, a final wire passed from the measuring rheostat to the forehead of some healthy individual. The individual stripped himself to the waist and then faced west in a dim light. Notice this added hokum that goes back to the priest craft of biblical legend! The operator, or Abrams' disciple, as he may better be termed, then percussed or tapped upon the abdomen of this healthy subject. Various areas of dullness naturally were found, and it was the peculiar delusion of Albert Abrams that he could tell whether the person whose blood was being tested was suffering from syphilis, sarcoma, carcinoma or cancer, typhoid fever, malaria, gonorrhea, tuberculosis, or various forms of sepsis by such dull areas. Not only that! He claimed he could determine the very spot within the body of the individual who had supplied the blood at which the disease had its focus. Further-

more, the severity of the condition was measured in ohms of resistance. Still more wonderful, but unfortunately not true, Dr. Abrams claimed that one could substitute the autograph of some dead individual instead of his blood and find out what diseases that individual suffered from. Finally, he asserted that he could explain, according to the amount of dullness and its position, the religion of the person tested. In his periodical, founded especially for disseminating these extraordinary ideas, he classified six types of religion, including Catholic, Methodist, Seventh-Day Adventists, Theosophist, Protestant, and Jews, with the area of dullness for the Methodist in the left lower quarter of the abdomen and that for a Protestant in the right lower quarter, never explaining what peculiar conditions of the appendix in the right lower corner or the lower large bowel in the lower left quarter might be responsible for the varying dullness in the subject tested. The explanation was never forthcoming as to why the blood of persons of the Jewish faith should produce so much more abdominal dullness in the subject than that of Christians. Had the percussion been made directly on the persons concerned, the frequency of constipation in persons of Jewish origin who are naturally heavy eaters might have explained the matter satisfactorily, but it must be borne in mind

that the percussion was invariably made on a healthy subject and that the person concerned supplied only a drop of blood which was placed in the Abrams dynamizer. Once these strange devices were developed, Dr. Abrams made them available to physicians and osteopaths who cared to have them.

A periodical known as *Physical Clinical Medicine* was founded and "devoted to the study of the electronic reactions of Abrams in the diagnosis, treatment and pathology of disease." It was sold at $1 per copy or $2 per year. Here Abrams advertised his courses in spondylotherapy and electronic diagnosis and treatment at $200 per course in advance, and here also he offered to furnish the four pieces of intricate machinery for a total of $198 with the significant legend "no apparatus sold on credit—terms cash."

It will be seen that thus far Albert Abrams was concerned only with the diagnosis of disease and that the electronic method had nothing to say about treatment. It is a well-known fact, however, that much more money is to be made from persistent courses of treatment which involve numerous visits to the office of the cultist than from the single visit that produces a diagnosis. It might have been expected, therefore, that the astute Abrams would de-

velop a method of treatment on the basis of his system of diagnosis. The device which he finally issued was known as the oscilloclast. This device was to be had only on lease, however. The lessee had to sign a contract that he would not open the device after it was received. The oscilloclast was sold for a first payment of either $200 or $250, according to whether it was wired for alternating or direct current, and the lessee was responsible for monthly payments of $5 each, covering its term of use. According to the theory of the exploiter of this device, each disease has a vibration rate. When the patient is subjected to treatment with the device the vibration rate is made the same as that of the condition from which he presumably may suffer.

In October, 1923, an opportunity occurred in Los Angeles to examine the actual value of the Abrams apparatus through the medium of a justice court case. In connection with this matter, Professor R. A. Millikan, head of the California Institute of Technology, winner of the Nobel Prize in physics and an authority in the realm of physics, examined the Abrams apparatus and its method of use. He stated that he did not consider that this apparatus rested upon any sort of scientific foundation whatever, and, indeed, that the claims set up by Abrams and his followers from the standpoint of physics are

the height of absurdity. In a more technical explanation, Professor Millikan pointed out that when making a diagnosis, the Abrams followers insert electric resistance into a circuit which cannot oscillate at all, and therefore has no vibration frequency and that the claim that a diagnosis can be made by turning a dial to different buttons indicates complete ignorance of the fundamental laws of physics. He further pointed out that Abrams' followers claim that they impose on the microörganism of disease its own vibration frequency; yet what they actually do is to impose one and the same vibration frequency for all diseases. "If a microörganism has any natural frequency at all," said Professor Millikan, "it would have to be millions of times higher than any audible frequency of the kind they use in the treatment, so that the claim that they are finding and then imposing upon the disease its own natural frequency is simply the height of ignorance in view of the kind of physical mechanism with which they are dealing."

At the same time other investigations were made by physicians who did not hesitate to open and analyze the Abrams apparatus. It was found that it constituted a veritable jungle of electric wires—an apparatus violating all the sound rules of electric construction. Indeed, cases are reported of deaths

that occurred to persons subjected to treatment, because the construction of the apparatus was such that the ignorant electronic practitioner so connected the machinery that the full city current passed through the body of the patient.

We come then particularly to the type of physician who employs the Abrams apparatus, and who is pleased to call himself an "electronic practitioner." The records of many were in the files of the American Medical Association that are devoted to quacks and quackery. As was pointed out, Abrams organized early the American Association for the Study of Spondylotherapy. Promptly on the launching of so-called electronic medicine he developed the American Electronic Research Association with various state branches. Albert Abrams was first president and then honorary president. Early in the development of his campaign, Abrams determined to admit osteopaths to the exclusive circle of electronic practitioners and to his courses in San Francisco. He knew the value that attaches itself to exclusiveness and the humble chiropractor was not admitted into the sacred fold. However, certain chiropractors are apparently not averse to employing the Abrams machinery for extracting shekels from the deluded and unwary. Indeed, the report of the annual convention of the American Electronic Research Associa-

tion brought prominently to the attention of those present the fact that manufacturers of Abrams apparatus were regularly selling such a device to chiropractors. One Dr. Cowan, who it appears represented the American Institute of Rational Therapeutics in Chicago, spoke as follows:

Question: What is the name of the machine?

Mr. Cowan: We have two types of treating machines. One is a unit that treats one person at a time. That is called the electronoclast. We have also a master machine that treats six patients at a time. That is known as the isoclast.

Question: The diagnostic machine?

Mr. Cowan: That is known as the hemopathometer. Hemo means blood, path means pathology, meter means measure, hemopathometer.

Question: Do you sell to chiropractors?

Mr. Cowan: Do we sell to chiropractors? I answered that by saying that we do just exactly like everyone else on the floor. If a chiropractor is licensed by the state of Illinois——

Question: Yes or no.

Mr. Cowan: All right, I do exactly like my competitors, yes, I do like they do. Does that answer it?

As I said, we have over 300 graduates who

have taken our work. The vast majority of them are osteopaths, next are the medical men. We have a smattering of other practitioners. In the state of Illinois we have no chiropractic license. These men are on a plane with the medical men, almost. They can sign death certificates. They are permitted to practice. If they come to us we teach them the work. If it is wrong, if you people think so, we are willing to change it, if they do.

Dr. Replogle: I would like to know what is the use of so many funny names? Why not call it the oscilloclast? That was the original name.

Mr. Cowan: That is a very good question. Why not call it the oscilloclast? Unfortunately, we are living in an age where it is not heaven yet, and if a name is perfected by any one individual and copyrighted, no one has a right, even if they so desired, to name their apparatus after that. Iso means the same, clast means to break down. That is the principle of our treating machine. We break down by similar vibrations. That is why we call it isoclast. The word oscillo is different.

Dr. Replogle: Oscilloclast, clast means to break, does your machine mean any more than that?

Mr. Cowan: If I would use the word oscilloclast, I could not use it if I wanted to.

Dr. Cowan was no modest violet in discussing his apparatus: "In the diagnostic machine," he said, "we check up Dr. Abrams. We don't maintain that Dr. Abrams was wrong, but he knew nothing of what he was talking about." It is the opinion of most of the electricians who have investigated Abrams' device, that Abrams knew little or nothing at all about the fundamental facts of electricity.

Were the cult still active, it might be worth while to recapitulate some of the many data accumulated by the American Medical Association of attempts to study scientifically the Abrams apparatus and to submit Abrams and his followers to tests under scientifically controlled methods. It is humorous to know that the blood of a guinea-pig, and a lady guinea-pig at that, was sent to an Abrams practitioner in Oklahoma City, purporting to be from Mr. P. whose history was sent with it. The Abrams practitioner submitted one of those remarkable diagnoses of all sorts of diseases with various ohms of resistance. Yet a postmortem of this virtuous, unsuspecting lady guinea-pig showed her to be suffering from none of the highly unvirtuous complaints which were accredited to the blood that she yielded. Then the blood of a most gentlemanly guinea-pig was sent to an Abrams practitioner in Albuquerque, and the astounding report was returned that this remarkable

animal suffered from a streptococcic infection of his left fallopian tube. He had shown no female characteristics up to that time, and a postmortem examination yielded no evidence of lady-like attributes. Similar experiments were made with all sorts of Abrams practitioners in all parts of the country and with equally preposterous results.

The apotheosis of Abrams' career came with the introduction of the sphygmo-biometer, to be used in diagnosing the presence of oil beneath the surface of the earth. One thing about oil, however, it is either there or it is not. Needless to state, the life of this apparatus was a brief one.

This remarkable cult naturally attracted wide attention in the daily press. It became a common subject of newspaper consideration and astute editors of magazines saw opportunity for exploitation. Early in the history of the cult, *Pearson's Magazine* succumbed to the Abrams publicity. On the other hand, the Dearborn *Independent,* perhaps stimulated somewhat by Mr. Ford's antisemitic leanings, revealed the fallacies and interests underlying the Abrams exploitation. Again the *Scientific American* published a series of articles constituting a complete investigation of the Abrams matter which showed it to be quite without reason.

In January, 1925, the *British Medical Journal*

published the full report of a British committee on a device developed by one Dr. E. W. Boyd, apparently a disciple of Abrams, who had developed what he called an "emanometer." One of the members of this committee, an engineer named W. Whatley Smith, soon came to light as the author of articles in several periodicals addressed to the public, in which he featured the findings of the committee, emphasizing his belief that the results had to some extent established the principles underlying the observations of Dr. Abrams. One of his articles was headed with the direct question: "Did Dr. Abrams Make A Real Discovery?" To that the answer is obvious. Since time immemorial it has been known that a certain number of credulous persons will always be found who will believe anything that they cannot understand; this, after all, was the great discovery of Dr. Abrams. The complicated machinery that he devised for extracting the shekels of the unwary was the modus operandi for putting his discovery to practical effect.

In Mr. Smith's statement as to the work of the British committee he omitted many facts which can be gleaned by careful reading from the original report. In the first place, Dr. W. E. Boyd derived his knowledge of the Abrams device from X-ray pictures of the apparatus since he had contracted not

to open it. He concluded that the Abrams resistance box was not a resistance device, but a coil wound for inductance. Sir Thomas Horder, the head of the committee, emphasized that the Boyd apparatus is not the Abrams apparatus. "It is commonly but erroneously supposed," he said, "that the instrument of Boyd is no more than a minor variation on that of Abrams, whereas it appears actually to be a design *de novo* based on a different conception of the phenomena involved." Sir Thomas Horder also pointed out that none of the members of the committee mastered the technic for themselves and that they depended on the work of the exponents of the method; he thanked Dr. Boyd particularly for lending himself to the work.

In analyzing the results it may be important first to point out that attempts were made to measure electrically the changes alleged to occur, thus avoiding the percussing tests on the abdomen of a human but that this was found impossible. The results were indeterminate and the committee does not even report them. Let us consider then the report on the tests of the sputum, to which Mr. Whatley Smith refers. A first series of tests were carried out in London. Here Dr. Boyd endeavored to separate correctly twenty pairs of specimens of sputum taken from two patients chosen and approved by one Dr.

McCrae. "The outcome of the test was unfavorable to the technique," says the report, "for of the results returned by the exponents only eleven were correct, while nine were wrong; which is just the kind of result which would be expected if chance alone were operative." Mr. Smith says nothing in his paper of this test.

The report points out that Dr. Boyd sent a memorandum to the committee ascribing his failure to the fact that the arrangements were not satisfactory and that the time required for checking the specimens caused them to become stale. He then arranged for another test in his own laboratory, in which he supplied the specimens and in which the only ones present were Mr. Whatley Smith, Dr. Boyd, Dr. Boyd's secretary, and two Glasgow boys who were the subjects. It was this test which Mr. Whatley Smith glorifies as one hundred per cent. perfect. No real scientist who reads the details of the tests conducted for Mr. Whatley Smith will feel anything but a sort of pity for Mr. Smith's credulity. One can remember in this connection only similar groups of investigators who have been the willing scapegoats for thinking horses, spiritualistic mediums, and hysterical malingerers. Indeed, it occurred to the representatives of the committee that Mr. Smith might have been overenthusiastic so that the full

committee, including Sir Thomas Horder, Mr. E. J. Dingwall and Dr. Heald proceeded to Glasgow for a repetition of the tests exhibited for Mr. Smith. The whole committee was satisfied. That is the sum and substance of the tests made in England to determine whether or not the Abrams ideas were sound and the Abrams devices trustworthy.

A real scientist would have drawn the conclusion from these tests that Dr. Boyd, in his own laboratory, using certain electric apparatus had apparently been able to distinguish between two specimens of sputum through a change in the percussion-notes of the abdomens of two boys with whom the sputums were connected electrically. Instead, the committee drew the conclusion that these experiments establish to a very high degree of probability the fundamental proposition underlying the apparatus designed for eliciting the electronic reactions of Abrams. They have the saving grace to say that the whole thing is extremely elusive and highly susceptible to interference and that it would be premature even to hazard a hypothesis as to the physical basis of the phenomena described. As is obvious to any one who can read, the experiments have nothing whatever to do with the diagnosis of disease. Realizing perhaps the dangerous use that might be made of their conclusions by the followers of Abrams the committee

stated their view on this point in no uncertain terms:

"To sum up," they said, "the conclusions arrived at in this communication leave the position of the practicing electronist as scientifically unsound and as ethically unjustified as it was before. They give no sanction for the use of E. R. A. in the diagnosis or in the treatment of disease. Nor does there appear to be any other sanction for this kind of practice at the present time."

On January 13, 1924, Dr. Abrams departed this life, succumbing to an attack of pneumonia. He left behind him considerable property and several relatives, together with a will indicating his desire that a school be established for perpetuating his electronic methods and his discoveries. Promptly suits were instituted involving the property thus concerned. Electronic practice had paid well, as is apparent from the fact that the available assets amounted to at least a million dollars, not including the value of the patents for the Abrams devices. These patents are obviously worthless without the promotion of an Abrams behind them and if one is to judge by the available evidence, the future will show only diminishing returns. Indeed, in filing her suit, the sister of Albert Abrams pointed out that the organization of the college, the charitable institution which he had in his lifetime established, was

merely a profit making concern of Dr. Abrams and was his individual property. Apparently the so-called Abrams College is attempting to function under its trustees.

It is common in the history of cults in medicine that they live as long as there are two reasons for their existence: (1) The survival of and promotion by the major prophet who inspires his followers by his personality, his enthusiasm and his methods; (2) the existence of funds to a considerable amount, administered by trustees who cannot reach the principal, and capable of earning additional funds which are devoted to the perpetuation of the cult. So far as electronic medicine is concerned, the major prophet has passed and there seems to have appeared on the horizon thus far no chief disciple of his unusual personality. On the other hand, the funds left by Abrams constituted a juicy bone for which the attorneys for his relatives and representatives of the electronic organizations contested mightily. Apparently an agreement was reached whereby the institution elaborated by Albert Abrams for the promotion of his methods and his devices is perpetuated. So long, therefore, as these funds are not detoured from that purpose there will be electronic practitioners to ply upon the public their method of diagnosing and treating disease. It has

been customary to characterize such methods as pseudo-scientific. To use such a term in connection with the Abrams technic and devices is to dignify them far beyond their merit. They are, in fact, only the continuous proof that a considerable number of people are willing to believe anything that they do not understand. The possibilities of financial gain invariably attract many who are willing to believe so long as belief constitutes a source of income.

CHAPTER VII

FADS IN HEALTH LEGISLATION

The life of the law has not been logic; it has been experience. The felt necessities of the time, the prevalent moral and political theories; institutions of public policy, even the prejudices which judges share with their fellow men, have had a good deal more to do than the syllogism in determining the rule by which men should be governed.—JUSTICE OLIVER WENDELL HOLMES: *The Common Law.*

It is absurd that the administration of a modern State should be left to men ignorant of science and of its human consequences.—FREDERICK SODDY: *Science and Life.*

I

NOT long ago a group of physicians were returning from a medical convention. They were seated in the smoking compartment of the Pullman, discussing the newest restrictions which a beneficent democracy had decided to place on the practice of medicine, and time passed so rapidly that they failed to take notice of the fact that they were rapidly nearing their destination. The porter, whose vision of fifty-cent tips was fading, finally mustered up the courage to make a direct attack. He tapped one of the gossiping medicos on the shoulder and inquired: "Brush you off, sah?"

"No, indeed," said the doctor, unwilling to be

disturbed, "I don't want to fill all this air with bacteria."

"Don't be afraid, sah," said the porter, "the brushin' that I do ain' gwine disturb no bacteria none."

In 1920 the Board of Health of Florida established the following regulation, among others, for the conduct of common carriers:

> The brushing of passengers' clothing in the body of the car in transit is prohibited.

Between the porter's skepticism and the fears of the author of that ordinance what a wide range of opinion! But how much of our health legislation is actually as ineffective as the porter's brush? In no field of human activity do the laws present such a bewildering maze of fact and fallacy, of the unenforceable and the unobeyable, as in that of public health. In many instances they seem to represent the transient enthusiasms of the day translated into the rigid legislation of a generation; in other cases, they ramble limpingly along miles behind the science with whose progress they pretend to keep pace.

Far back in the last century an epidemic of cholera broke upon the world, and with no knowledge of bacteriology the authorities of the time were con-

fronted with a demand for protection by a panic-stricken public. On August 16, 1832, the Board of Health of Washington issued the following pronunciamento:

> The Board of Health, after mature deliberations, have Resolved, and they do now declare, that the following articles are, in their opinion, highly prejudicial to health at the present season. Believing them, therefore, in the light of nuisances, they hereby direct that the sale of them, or their introduction within the limits of this city, be prohibited from and after the 22nd instant, for the space of ninety days:
>
> Cabbage, green corn, cucumbers, peas, beans, parsnips, carrots, egg plants, cimblings or squashes, pumpkins, turnips, watermelons, cantaloupes, muskmelons, apples, pears, peaches, plums, damsons, cherries, apricots, pineapples, oranges, lemons, limes, cocoanuts, ice-creams, fish, crabs, oysters, clams, lobsters, and crawfish.
>
> The following articles the Board have not considered it necessary to prohibit the sale of, but even these they would admonish the community to be moderate in using:
>
> Potatoes, beets, tomatoes and onions.

Having thus cut off entirely the supply of fresh vegetables, with the exception of four on which they

cast discredit, the board recommended that all theatrical performances or other exhibitions which might be calculated to bring together large collections of persons be suspended for ninety days, and then followed with a still more remarkable resolution:

> *Resolved,* That it is the opinion of the Board of Health of this city that quarantine regulations interdicting the commercial intercourse of our country are wholly ineffectual in preventing the introduction and spread of Asiatic cholera, as well as vexatious and embarrassing to the community, and that they are injurious by creating a false confidence in such provisions, to the neglect of the more important preservatives from the disease. The Board therefore earnestly desires that the city authorities will not enact any prohibitory regulations upon this subject.

So early entered the commercial considerations with which health regulations are still so frequently at war! In this day, when we know that cholera is caused by a definite bacterial organism, first described by Robert Koch in 1883; when we know that it is spread like typhoid, through contact with a patient, or through contamination of milk or water by his excreta; when we know that it can be and

has been kept out by an adequate system of quarantine, the resolutions of the Washington Board seem asinine and ridiculous. Our knowledge of infectious disease has developed more in the past forty years than in all the previous centuries. Our sanitary authorities no longer work in the dark; they are able to recommend safe and sound legislation for the control of disease. But only too often, alas, legislators contrive to yield to expediency, to fanatical enthusiasm, or to the unweighed superficial evidence of the hour. The results are always ludicrous and sometimes they are disastrous.

II

The United States Public Health Service, at definite intervals, compiles in handy volumes the State laws and regulations pertaining to the public health. It would be impossible, in the scope of this article, to present a detailed analysis of all of these laws. I shall therefore select a few at random, choosing those which demonstrate how little the legislative mind has changed during a century.

In 1916 the State of Colorado passed a measure regarding the hygienic arrangements of places in which food is prepared, manufactured or distributed. Among other clauses appeared the following:

> Cuspidors for the use of operatives, employees, clerks, or other persons shall be provided whenever necessary, and each cuspidor shall be thoroughly emptied and washed out daily with a disinfectant solution.

Thus Colorado, the mecca of the tuberculous, instead of attempting to educate its public to the menace of expectorating where food is lying about, promotes the habit by supplying facilities for it! What, indeed, is the presence of the spittoon but a psychological encouragement to spitting?

That gaudy institution, the American barber-shop, in which Babbitt receives elegantly the simultaneous ministrations of barber, manicurist and bootblack, is naturally subject to numerous abuses from the health point of view. Dermatologists have conferred the name of barber's itch on a form of infection often acquired there, and no doubt many a seeker of cosmetic embellishment has fetched away other and even worse blessings. These facts have become known, it appears, to legislators, and the result is a weird assemblage of regulations governing tonsorial activities, most of them utterly inadequate to prevent the dangers at which they are aimed, and all quite unen-

forceable without tremendous staffs of special barber-shop hounds. Consider the following from the Colorado code-book:

> Soaps, bay rums, face lotions, hair tonics and other toilet articles and all solutions must be pure and unadulterated.

Let anyone explain what that means—and if it means what he probably thinks it means, how it is to be enforced? The State of Colorado also believes that its barbers should be physically above reproach. It therefore disregards a half-dozen obvious facts that make the enforcement of the law impossible and salves its conscience with the following:

> Any barber who is affected with open tuberculosis, venereal or other communicable disease must not practice the barber trade. Habitual drunkenness or the use of intoxicating liquor during business hours is strictly forbidden.

Strange that Colorado should thus by insinuation attack the sobriety of one of the most erudite professions practiced in our midst!

Alabama answers the roll-call with a sanitary regulation concerning soda-fountains:

> No patron or customer shall be supplied with a spoon for consumption of a drink or a confection except it has been sterilized since last used, or has never been used.

Sterilization requires equipment which the soda-fountains of Alabama certainly do not provide. Where, indeed, is the evidence that disease is carried by spoons that have been washed in running water? And how is the spoon, once sterilized, to reach the customer in a still sterile condition? Moreover, who knows how many bacteria may reside on a spoon that has never been used?

Arizona provides a law regulating midwives with this provision:

> A midwife must endeavor to secure the assistance of a physician if the child is not born after twenty-four hours of labor.

It would be interesting to know what scientific opinion aided the lawmakers in determining that twenty-four hours should be the limit of difficulty. Why not twelve or eighteen? And if twenty-four is safe, why not thirty-six?

Florida is particularly concerned with sanitary requirements affecting common carriers. In common

with many other states, it forbids the provision of comb and brush in Pullman cars, and so the passenger is compelled to tip the porter a quarter for producing a bootleg comb from the receptacle in which he has conveniently concealed it. It also requires the cleaning of telephone earpieces and mouthpieces with soap and water at least once a week, although there is not the slightest scientific evidence that disease has ever been transmitted by these appliances; indeed, experiments recently conducted under government supervision in England show that the likelihood of infection from such sources is infinitesimally small.

Following the last great epidemic of influenza Illinois and many other States adopted elaborate laws for the control of that disease. The Illinois regulations involve notification, placarding, quarantine and terminal disinfection. On November 3, 1918, the State of Washington issued a regulation requiring every person to wear a gauze mask of a specified character when in public during the duration of an epidemic of influenza, and other States have laws requiring the use of gauze masks by those in contact with a patient. All of these regulations are subject to criticism on the ground that the manner of spreading the disease is not definitely known and that there is no sharp dividing line between what

is commonly called a severe cold during non-epidemic periods and what is called a light attack of influenza during epidemic periods. It is known that the infecting substance of epidemic influenza is carried in the nose and throat, and so precautions should be observed during epidemics by those in contact with infected persons, but any regulation requiring notification and placarding for influenza during non-epidemic periods is quite unwarranted in theory, and is certainly never observed in practice.

Next to the common carrier the hotel and the restaurant are the chief prey of the legislator interested in hygiene. North Dakota has a hotel inspection act that covers carefully almost every imaginable sanitary contingency. Many years ago an elongated Texan entered a Texas hostelry and engaged sleeping accommodations for the night. The Texan was six feet eight inches in height and he retired to a bed in which the sheet was only six feet long. When he drew it up to his head his feet were uncovered and when he covered his feet his neck was unprotected. The result of his harrowing experience was the famous, and perhaps legendary, Texas bed-sheet law which ordained that every hotel must provide sheets long enough to tuck under the mattress at either end. But North Dakota's law is not directed so much to the matter of comfort as to that

of hygiene. It provides that hotels charging fifty cents a night or more shall always change sheets and pillow slips after a guest departs. Obviously, the guest who pays less than fifty cents a night is likely to be less cleanly and to leave more for the next occupant than is the one who is able to pay more, but no doubt economy as well as hygiene swayed the legislators in their deliberations!

III

From the point of view of vital statistics no law is so important as that requiring the registration of births. The United States has been particularly backward in this respect and there are many States not yet in the registration area. Moreover, both physicians and the public are frequently lax in carrying out the duties imposed upon them by law. Furthermore, while legislators are quite willing to pass all sorts of statutes for the benefit of the public health they usually hesitate to provide the necessary funds for administering the acts that are passed. The result is sometimes ludicrous. But it is a question if folly in this department has ever attained elsewhere the heights revealed in a circular issued by the State Registrar of Virginia on March 20, 1921. I quote in part:

Senate Bill No. 219, to preserve racial integrity, passed the House March 8, 1924, and is now a law of this State.

This bill aims at correcting a condition which only the more thoughtful people of Virginia know the experience of.

It is estimated that there are in the State from 10,000 to 20,000, possibly more, near-white people, who are known to possess an intermixture of colored blood, in some cases to a slight extent, it is true, but still enough to prevent them from being white.

In the past it has been possible for these people to declare themselves white or even to have the Court so declare them. Then they have demanded the admittance of their children into the white schools, and in not a few cases have intermarried with white people.

In many counties they exist as distinct colonies holding themselves aloof from Negroes, but not being admitted by the white people as of their race.

In any large gathering or school of colored people, especially in the cities, many will be observed who are scarcely distinguishable as colored.

These persons, however, are not white in reality, nor by the new definition of this law, that a white person is one with no trace of the blood of another race, except that a person

with one-sixteenth of the American Indian, if there is no other race mixture, may be classed as white.

Their children are likely to revert to the distinctly Negro type even when all apparent evidence of mixture has disappeared. . . .

Our Bureau has kept a watchful eye upon the situation, and has guarded the welfare of the State as far as possible with inadequate law and power. The condition has gone on, however, and is rapidly increasing in importance.

Unless radical measures are used to prevent it, Virginia and other parts of the nation must surely in time go the way of all other countries in which people of two or more races have lived in close contact. With the exception of the Hebrew race, complete intermixture or amalgamation has been the inevitable result.

To succeed, the intermarriage of the white race with mixed stock must be made impossible. But that is not sufficient. Public sentiment must be so aroused that intermixture out of wedlock will cease.

The public must be led to look with scorn and contempt upon the man who will degrade himself, and do harm to society, by such abhorrent deeds.

The registrar obviously recognizes the frequency in the South of amourettes between white men and

Negro girls and apparently plans to prevent more of them by arousing public opinion. He recognizes also that at least 20,000 persons in the State have Negro elements in their white blood and that on occasion the result of a marriage between two such ostensibly white persons may be a somewhat dusky progeny. What he does not know, and what no one else knows for that matter, is any certain method of determining when Negro blood is present in a person, or how to determine just when the prospective infant of such a person will show it. Nevertheless, he is bold in attacking the problem, perhaps because his solution offers a means of providing funds for extending the work of his department. Here is his solution:

> The task of the Bureau of Vital Statistics is a great one, with not a cent of appropriation to accomplish it with.
>
> There is a plan, however, by which it may be financed if the public will lend its aid.
>
> Thousands have applied for the registration of births that occurred before June 14, 1921, the date when the old law went into effect.
>
> The new law further provides for the registration of all persons who desire it, and who will make application for such registration of color and birth, remitting at the same time the fee of twenty-five cents for each applicant. Do

not send stamps. The births will be permanently recorded and preserved for all time and will be of great value for many purposes, such as to prove American citizenship when applying for passports to go abroad, and for establishing and preserving the family tree for future generations.

We will even admit for registration persons living in Virginia but born elsewhere. A family may complete its family tree by recording deceased ancestors or relatives. Each person will thus obtain full value received for the small fee. Virginians now living elsewhere may also register.

If ten or twenty thousand or more will register within the next few weeks, we will be able to provide printed forms, filing cases, desks, typewriters, postage and clerk hire, to begin a vigorous State-wide educational propaganda.

As has been said, there is no known method by which the admixture of Negro blood with white in the human being may be certainly detected. It thus becomes possible for any person in the State of Virginia to obtain from the State Registrar, for the small sum of twenty-five cents, a card certifying that he is white! Certainly, if the funds at the disposal of the Registrar are as limited as he himself admits, he will have little opportunity to verify the state-

ments made on the applications sent to him. And even if the matter came to a formal test, science would be quite unable to aid him in detecting the presence of a Negro strain that was not obvious to the naked eye.

IV

With our forty-eight States and the District of Columbia we have an equal number of laws regulating the practice of medicine. They are practically without uniformity, and in many states there are four or five discordant laws covering the various new cults. Following is an excerpt from an act passed by the legislature of Connecticut—a State famous for lately licensing almost a hundred men with stolen, purchased or otherwise misgotten medical diplomas. This law is entitled "An Act Concerning the Practice of Natureopathy":

> For the purpose of this act, the practice of natureopathy shall be held to mean the practice of the psychological, mechanical and material sciences, as follows: The psychological sciences such as psychotherapy; the mechanical sciences, such as mechanotherapy, articular manipulation, massage, corrective and orthopedic gymnastics, neurotherapy, physiotherapy, hydro-

> therapy, electrotherapy, thermotherapy, phototherapy, chromotherapy, vibriotherapy, concussion, pneumatotherapy, and zonetherapy; and the material sciences, such as dietetics, histolotherapy and external applications; but shall not be held to mean internal medication.

Here is legal power inflicting on the people of the State all the fantastic forms of assault upon the exterior of the ailing human that have been devised by the paranoiac brains of a hundred cultist prophets! By the act the State gives legal recognition to the disciples of the late—but not too late—Albert Abrams, who was responsible for vibration therapy and for concussion; of Fitzgerald, who evolved zonetherapy, with its tenet that squeezing the big toe will cure a pain in a tooth; of Col. Dinshah Ghadali and his spectrochrome-therapy; of George Starr White and his bio-dynamo-chromatic-therapy; of Still, the osteopath; Palmer, the chiropractor, and heaven knows how many more grotesque evangelists. Connecticut thus provides amiably for all the cultists; most other States, perhaps a little more wary, provide only for the groups with effective lobbies.

The control of venereal disease is the despair of public health officers and legislators alike. The statute books of all the States bulge with measures

that are hopelessly inefficient to accomplish what they purport to do. Many States and municipalities have laws requiring the reporting of cases of venereal disease by both name and address, by address alone or with neither name nor address. None of these methods yields anything resembling an adequate index of the true venereal disease rate of the community. Some States also require druggists to record the names of those purchasing remedies believed to be for the treatment of venereal disease, but I have seen nowhere any evidence that such laws are obeyed or that they have accomplished anything. Elsewhere, arrangements are made to quarantine and treat those suffering with venereal disease, particularly the prostitute who is the widest disseminator of these diseases; the first few hours after her release see her again at work, promptly infected again, if not still infectious, and as promptly infecting those who come in contact with her. The truth is that physicians who have watched the progress of venereal disease legislation over many years have become more and more convinced that their eradication is an educational and medical problem, not a legislative one. Eradication will depend on education in prophylaxis and on prompt and successful treatment. Certainly the burden of proof is on the legislators and their advisers that their restrictive

and regulatory measures have accomplished anything. The only value of much of the legislation so far enacted lies in its dissemination of educational matter.

All in all, the study of legislation in the field of health and hygiene leads to a simple conclusion, and it is that of Mr. Justice Holmes: "The life of the law has not been logic" and "the prevalent moral and political theories . . . have had a good deal more to do than the syllogism in determining the rule by which men should be governed." Nebraska, Wisconsin and many other States have laws which forbid physicians to split fees, and a strong organization of surgeons in this country requires each of its members to take an oath that he will not do so. But only an elementary knowledge of human nature is required to make it plain that the man who wants to split fees will not hesitate to violate a law that is easier to flout than the Volstead Act, or to break an oath of the nature of that required by the surgical organization. How many men, indeed, have ever been penalized for violating that law, and how many have been dropped from the surgical organization for forgetting their oath?

A typical disregard of logic by legislators appeared in the passage of the Sheppard-Towner Act by the last Congress, providing for the "public pro-

tection of maternity and infancy." This act was one of those, rather numerous during the Harding administration, which arranged to give a certain amount of money to the individual State out of the national treasury, provided the State would appropriate an equal amount. As might have been expected, the law was heartily endorsed by the conference of State and territorial health officers, which meets annually in Washington. Similar measures were introduced for the development of physical training, for improvements in education, for the treatment of venereal diseases, and for other projects. As soon as any such federal law is passed the proponents of it mobilize at the State legislatures and use it as an inducement to get large State appropriations.

The American Medical Association through its Journal and many other important medical organizations opposed the passage of the Sheppard-Towner Act. It was urged that the care of the mother and the child is a local—even a personal—not a federal function. It was pointed out that the encroachment of the State upon the personal relations between the patient and his physician was becoming a menace. Compulsory health insurance and state medicine, indeed, are the ultimate and worst forms of pater-

nalism; they hinder medical progress by inhibiting individual initiative. Let me quote from Dr. Frank Billings, a leader of American medicine, on this point:

> There may be rational grounds for this policy in sparsely populated regions of the country which are not provided with a sufficient number of resident physicians to care properly for the sick. With this exception there is no rational basis for this sort of paternalism on the part of the federal or State government. State medicine is naturally and properly concerned in the matter of public health: air, and water pollution, food contamination and adulteration, the prevention of the spread of communicable diseases, and the like. The State properly may standardize and enforce certain rules of procedure—notification, methods of disinfection, and the like—for the medical practitioner in the management of patients who suffer from communicable diseases; but the treatment must be left with the physician. . . . Experience shows that centralized administration, either federal or State, of activities dealing with the health or with the treatment of the sick and injured is likely to become bureaucratic and occasionally is subject to political debasement.

It is significant that President Coolidge put himself definitely on record as opposed in principle to all laws which involve federal subsidies to individual States. But the reader who will look up the platforms of both the major political parties during 1920 will find planks in each of them promising definitely to provide maternity-infancy legislation. These planks were inserted by experienced platform builders to attract the growing women's vote. Now the legislation promised has been enacted and practically all the States have made the individual appropriations required—and yet, after three years, the maternal death-rate has not been appreciably affected. Yes! Mr. Justice Holmes was right: "the institutions of public policy" have a great deal to do with shaping our laws; certainly much more than sound logic or the established facts of science!

CHAPTER VIII

BIRTH CONTROL: AN UNSOLVED PROBLEM

In his presidential address before the American Medical Association in 1924, Dr. William Allen Pusey devoted himself to the subject of the limitation of population, and brought to the support of an argument for birth control most of the familiar facts about the impossibility of supporting the population of the future on the land of the present. "If no effort is made at birth control," said Dr. Pusey, "nature will take charge of the situation by eliminating those less able to resist." Continuing his argument, he cited the contention of the economists that those people inherit the earth who multiply most rapidly, and that fecundity increases inversely according to the individual's position in the social scale. It seemed to him, as it has seemed to others, that this means the downfall of modern Christian civilization, with the triumph of the misery and degradation of Asia. "I particularly desire," he concluded, "that the mistaken impression should not go out that I mean to say that medicine now has

any satisfactory program for birth control. It has not."

In the tomes of the ardent economists, biologists, sociologists and philosophers who favor birth control the eager reader will also search futilely for any practical program, or, indeed, for any practical method. His disappointment will not, moreover, depend entirely on the fact that our government, either wisely or unwisely, has made unlawful the dissemination of such knowledge as is available. The fact is that none of the students of the problem, not even the physicians, have ever perfected any method of birth control that is physiologically, psychologically and biologically sound in both principle and practice. Not, of course, that devices for the prevention of conception do not exist; it is well known that they do, and that they are easily available to almost any purchaser in any drug-store in America. The difficulty lies primarily in the imperfection of the devices themselves, and in the peculiar psychology of the lower stratum of society which the birth-control enthusiasts insist must be brought to the light, lest its descendants inherit the earth.

Every practical psychologist knows that such folk are not at all interested in the welfare of the United States as it may be one hundred years from now. The desire to plan for posterity—and that posterity

not of the next succeeding generation, but of four generations ahead—connotes a high order of intelligence and public spirit. The impulse to sacrifice the pleasure of the moment for the profit of a far-removed future is within the moral scope, and always will be, of very few men, and perhaps of an even smaller number of women.

But more important than this lack of altruistic imagination is the lack of any sure device for birth control. Of all those at present available, the most ancient and most certain of all is that of simple continence. The chaste man or woman, obviously, never has a child. It is the contention of many religious and prudish persons that this continence is the only aid to the limitation of offspring that is approved by moral law. It is, on the other hand, the belief of most modern psychologists, and especially of the Freudians, that absolute continence in the presence of continuous temptation, such as must inevitably appear in the case of marriage between two persons who have for each other a profound affection, produces effects on the mental life and the daily behavior that are not conducive to a peaceful and healthful existence. Continence is hardly likely, therefore, to appeal to the more intelligent members of the community. And it is only by the more intelligent members of the community that one may expect

it to be practiced at all! The visible result of its impracticability among less reflective persons is apparent in the very fecundity which Dr. Pusey deplored. Even recognizing the fact that the long and piteous documents from working women printed in Mrs. Margaret Sanger's *Birth Control Review* are especially selected because they are long and piteous, they may be considered nevertheless as evidence that continence does not work among the poor.

As everyone knows, there are short periods in the life of a woman, recurring regularly, in which the likelihood of conception is less than at other times. These are, however, so indeterminate, and the modifying factors are so many, that those who have attempted to rely on them to limit their offspring have been invariably surprised at their failure. All the remaining methods now in use are mechanical and chemical. Do they work? Recently the best authorities available in Great Britain conducted a symposium on the subject. It was the general verdict that all were unsatisfactory, although a majority agreed that a commonly known device, invented some centuries ago by an Italian named Fallopius, was better than the rest. The percentage of efficiency of the latter varies from ten to somewhere about ninety per cent.; none of them is perfect. Moreover, some of them may produce irritations of the tissues

and grave consequences, including cancer. Little need be said here of their psychological effects.

One of the difficulties of arriving at a satisfactory formula for killing any sort of organism within the human body lies in the fact that any solution that is sufficiently strong to kill is also sufficiently strong to irritate and destroy the living body cells. So with all the chemical substances thus far proposed for destroying or inhibiting the activity of either the ovum of the female or the sperm of the male. Practically all such substances are subject to the charge that they are too weak to be efficient, or so strong as to be distinctly injurious to the tissues, especially if used frequently. On such devices there is never any agreement. Each of the chief advocates of birth control has some method which he or she considers the ideal. But the fact that Mrs. Sanger, Mrs. Stopes, Miss Rout and Miss Bocker do not agree should be sufficient evidence in itself that the ideal has not been reached.

Little is said by such propagandists about the psychological aspect of birth control, but this is obviously a matter of the greatest importance. The psychological factor, indeed, is largely responsible, not only for the frequent failure of all the common devices when applied under even the best of conditions, but also for the reluctance to utilize them, im-

perfect as they are, in the lower ranks of society. It would be possible here, if this were a popular, rather than a scientific, consideration of the subject, to picture a nocturnal scene between a male of the lower stratum, somewhat stimulated by alcohol, and the feminine partner of his misery, weary after a day at the washtub or scrubbing the halls of an apartment house. The mental states of the two, it must be plain, are hardly such as to lead them to pause for a consideration of their own difficulties, much less of the economic problems of the twenty-first century. The stimulated emotions of the male, coupled with the fatigued inhibitions of the female, are little likely to encourage a recourse to complex mechanisms in the name of humanity.

Medical science is not yet satisfied with the achievements of its investigators in this field. Research workers are still seeking methods which are scientifically safe and psychologically satisfactory. The two devices to which most attention is being given at this time involve the use of the X-rays and the biologic process involved in the creation of immunity. It has been shown that exposure of the ovary in the female or of the testis in the male to a sufficient dosage of X-rays results in atrophy or deterioration of the tissues, and so causes permanent

sterility. But the human tissues vary so greatly in resistance and the dosage of X-rays sufficient to produce the required effect without also producing other and much more harmful effects is so difficult to calculate, that the method is not as yet practical.

The other method has been the outgrowth of experiments by such investigators as Guyer, Dittler, Metchnikoff and McCartney. A proper understanding of it involves a knowledge of the biologic mechanism within the human body which results in the production of immunity to disease. It is known that a person who is infected with certain diseases develops resistance to future infection with those diseases by the creation within his body of antagonistic substances. In the same way, the injection into the body of certain chemical substances causes it to build up a defense against them. It therefore occurred to the investigators named to find out whether or not the female organism might be immunized against the sperm cell of the male. They were supported in their belief that it might be so immunized by observations which seemed to indicate that the female tended in time, under the ordinary process of exposure, to develop immunity to the male sperm. It is known, for instance, that the liability to become pregnant is much greater during the early years of

marriage than in the later years. It is known also that there is little tendency to become pregnant among prostitutes, and that this fact is not altogether the result of the chronic venereal infections to which this class is subject. Finally, it was observed that there was a subnormal tendency to pregnancy in periods following unusually frequent exposure.

The investigators prepared extracts and other preparations of the sperm cells of various animals, such as rabbits, albino rats and chickens. These were injected into females and careful observations were made to determine whether or not they had any effect on fecundity. It was found that a definite effect did appear. Female albino rats injected with the sperm of the male remained sterile for a period of from two to twenty-two weeks beyond the normal gestation time, although their normal sexual cycle and behavior seemed to be in no way altered. These experiments were carefully controlled by injecting an equal number of rats with salt solution or other innocuous material.

Obviously, if science is able to develop some such method as this, which will permit the production of sterility in individuals of the lower stratum with their own consent, which will be renewable after a definite period, and which will not depend for its effective-

ness on any mental or physical action of the persons concerned at the time of sexual activity, a feasible method of birth control will have been found. But certainly we cannot be said, as yet, to have reached any such method.

CHAPTER IX

THE ANTIVIVISECTIONIST AND ANIMAL EXPERIMENTATION

GEORGE JEAN NATHAN, in that immortal document, "Pistols for Two," in which he and Mons. Mencken, using the cognomen Maj. Owen Hatteras, gave to an unsuspecting world an insight into their personal characters and characteristics, tells us which of his aphorisms delights him most. Of all the soul searching mots perpetrated by this astute coiner of phrases, the one he selected is likewise the one that gives me most joy. "An antivivisectionist," said Dr. Nathan, "is a woman who strains at a guinea pig and swallows a baby." There it is in a nutshell! A Freudian might claim that the term "nutshell" was prominent in my mind because I was discussing the antivivisectionist.

At a period when the whole world begins to turn to science as the real goal of mankind; when intelligent human beings begin to discard pseudo-sentiment for fact, the followers of what is essentially merely an illogical, fanatical cult continue to oppose progress if it is to involve in any way what they

conceive to be abuse of the lower animals for purposes of study. This opposition seems to rest invariably on a lack of actual knowledge of what animal experimentation has accomplished for mankind, of what it has contributed to the life and comfort of the animal, of the extent to which the animal may suffer in the cause of experimentation, and of the very rules which the scientists themselves have elaborated to safeguard their work with animals.

It is impossible in the scope of a brief article even to enumerate all that has been learned by animal experimentation. Without the aid of this method Pasteur could not have founded the science of bacteriology; such diseases as hydrophobia, tuberculosis, yellow fever, plague, scarlet fever, diphtheria and diabetes would not have passed under the control of scientific medicine but would have continued to take their immense toll of life and to cause immeasurable economic loss through illness. Indeed, to calculate the sums saved and earned through preventing illness, through opening up countries constantly menaced by disease, through the building of the Panama Canal, and through the saving of workers in industry would produce a figure so vast as to be almost incredible.

Anyone who has seen a child succumbing to the gradual encroachment of the diphtheria membrane in

its throat suddenly respond to the marvelous effects of diphtheria antitoxin will oppose to the utmost any attempt to deprive that child of the remedy. In preparing antitoxin the horse is required for the production of the serum and the guinea pig for standardization. I have seen the horses used for such service. Their paths are spread in pleasant places. They toil not at all, they are kept clean, they frolic in the open air except when the weather may be inclement. They are well fed and given the best of attention. I have seen the serum withdrawn and seen the horse make no more visible sign of protest than is made by the average man when he sticks his finger on a pin in the back of his wife's dress. I have seen guinea pigs by the thousands utilized for this work. If I am any judge of guinea pig emotions they do not suffer unduly in the process. I have never seen a guinea pig suffer as much as a hysterical antivivisectionist suffers at a dog and pony show or a circus.

Before the discovery of the serum for epidemic meningitis from fifty to seventy-five per cent. of all who were afflicted died. When the serum is given the mortality is below twenty-five per cent. of those affected, and this says nothing of the saving in illness and in permanently disabling after effects. In the investigation which led to this discovery rabbits,

guinea pigs, horses and monkeys were employed. In a war, nations sacrifice the lives of hundreds of thousands of their finest young men; the people are told that the sacrifice is made so that women and children may have a safe place in which to live. Shall the lives of rabbits and guinea pigs be weighed against the lives of the same children threatened by far greater dangers than those of war: the dangers of infectious disease? Puerperal infection which killed the woman in childbirth was controlled through animal experimentation. What about saving women from that menace?

It is not alone the so-called biological remedies such as antitoxins, vaccines and serums that are dependent on animal experimentation. Most of the potent drug remedies used today for the alleviation and cure of disease must be tested and standardized by the use of animals. Most of our important synthetic drugs were first evolved only by the use of animals. The anesthetics such as ether, chloroform, ethylene and nitrous oxides have the same effects on animals that they have on man. Was it not right that they should be tested first on animals? Such drugs as digitalis, which makes the lives of many persons suffering from heart disease endurable, have to be standardized by animal tests. Shall the poisonous doses of potent drugs be learned by tests made

on the white rat or the guinea pig or on man, or worse still, shall we permit men to die or suffer mutilation to spare the feelings of the white mouse? Isn't it after all a question of sparing the hyperesthetic sensibilities of some idle woman rather than the duller sensibilities of some lower animal?

One by one the infectious diseases that attack man are being brought under control. There still remain those incurable diseases such as cancer, those conditions such as Bright's disease, high blood pressure, heart disease and diabetes, which may be alleviated but which have not been completely conquered. Shall the methods that have brought success in the control of some diseases be discarded at the whim of misguided and unreasoning followers of this cult opposed to human progress? Of course, animal experimentation never will be discarded. After all, the progress of scientific medicine is a powerful movement sweeping on and on with ever increasing impetus. The "fly on the chariot wheel" cannot halt it; but there is danger that the swarm of flies may impede its movement.

Strangely enough the lower animals have benefited as much as has man himself through the progress made by animal experimentation. Hog cholera serum, the tuberculin test for cattle, the control of hoof and mouth disease, puerperal sepsis in cattle,

hydrophobia, fowl plague, and the many worm diseases that afflict animals depend for their control on the same type of experimentation that yielded results for the diseases of man.

There is another side of the question that has its humorous aspects. It is necessary to kill hundreds of thousands of stray dogs and cats in our large cities to keep them from overrunning the human inhabitants. It has been estimated that a single pair of rats, if permitted to breed unchecked might produce within three years a number of progeny running into eighteen or twenty-four figures. Everyone knows about the prolificity of guinea pigs and rabbits which multiply inordinately. Who shall say that the uses of science are not as kind a fate, as satisfactory an existence, as is the hunting down of the surplus by the hunter, the trapper, the poisoner, or the poundmaster? As we have shown, the horse used for the production of serum has a far happier life than the drawer of burdens in the ownership of some unthinking careless human being.

It is hard for a person with a logical mind to see why this argument should be necessary. The average sensible American business man or farmer is likely to feel that we are agitating a cause in which the side of reason is so obvious that its elucidation is wasted effort. But there is a reason! Scientific

experimentation on animals began to attract public notice about 1875 when the accomplishments of research into the normal functions of the human body had already yielded notable results. In Great Britain agitation resulted in the appointment of a Royal Commission which made an investigation and recommended that the work be continued under suitable control.

Since that date efforts have been made by little groups of illogical thinkers to secure legislation both in Great Britain and in almost every state in our own country to inhibit or to prevent completely experiments involving the use of animals. In 1896 a great crowd of ladies and lawyers appeared before the Committee of the Massachusetts Legislature. Pamphlets were issued, leaflets were circulated, speakers vociferated abusively, mendaciously and piteously year after year. Worst of all, a few short-sighted possessors of great wealth, animated by no one knows what reasons, left funds in perpetuity for the uses of promotion of such organizations. Where there are funds, there are jobs for secretaries whose duty it is to promote regardless of the advances of progress. Year by year the same little lobbies pop up before the legislators. The same windy breed of legislators,—the sob-sisters of the legislative halls,—produce the same bills and defend them

with floods of crocodile tears. The same cohorts of university presidents, professors, physicians and representatives of industries vitally affected must be mobilized to present the facts in order to overcome this deluge of misguided sentiment. Year after year each legislator receives in his mail, if he is an American, a periodical called, "Our Dumb Animals," and if he is a Britisher, one called "The Abolitionist." And the rationally minded sober citizen looks on aghast and murmurs, "How long, O Lord, how long?"

The antivivisectionist is likely to attack the scientist who uses animals in his experiments on the ground that the latter is obsessed by sadistic impulses and that he takes a peculiar physical and psychologic delight in cruelty to animals. Of course, nothing could be further from the truth. There have always been lovers of animals among scientists; indeed, many have devoted much of their time to the protection of the interests of animals. There are, moreover, among them men and women whose whole lives are devoted to the protection of the weak and of the unfortunate. Among the terms used by the antivivisectionist are such words as "master demon," "arch fiend," "human monster," "human devil," "devil incarnate" and "fiend incarnate." Moreover, the places of research have been called "scientific

hells," "temples of torment" and "halls of agony," and the work characterized as "scientific assassination," "torture of the innocent," "the black art of vivisection" and "the orgy of cruelty." From such terms, one may realize the attitude of mind with which the antivivisectionist approaches his investigation into the scientific aspects of this subject. Indeed, it is more reasonable to say that the character of the antivivisectionist is intemperate and biased and that his propaganda leads him into frenzy, than it is to believe that the scientist, who works with a logical series of experiments that will lead to the cure of human disease, does so animated by fanatic or orgiastic motives.

One finds among the propagandists against animal experimentation the type of character that partakes of the ecstasy and the almost evangelistic enthusiasm that one sees in the leaders of cults of any type. In 1924, one Doctor Hadwen of England toured the United States for the promotion of the interests of this peculiar group. His lectures overflowed with unbridled exaggeration; he used all of the oratorical tricks and showmanship that evangelists have made familiar to us. On returning to England, however, he was called to treat a child dying of diphtheria and with the characteristic blind cruelty of the antivivisectionist, he overlooked all of the experimental

evidence that establishes the diphtheria bacillus as the cause of this disease, and all of the evidences that prove that diphtheria antitoxin will cure it. The child was permitted to die under the gentle ministrations of this misguided enthusiast. True, Hadwen was acquitted by the British court, because those who are licensed to practice medicine are permitted by the law to use such knowledge as they possess and such individual methods as their peculiar school of teaching may cause them to believe are satisfactory. The burden is thus put upon the layman in the selection of his physician, and the parent who called Doctor Hadwen had no recourse. When delusions persist to such lengths, is it not time that an intelligent government concerned itself seriously with the matter?

Medical scientists have not waited for government or other supervision to establish control over animal experimentation that will make it as nearly perfect as possible in preventing unnecessary pain and in providing animals with the best of care. A committee of the American Medical Association regularly functions for no other purpose. Under the control of this committee each laboratory binds itself to observe the rules laid down and to post those rules regularly in each department. The rules require the animals be held at least as long as they are held at the city pound; that they receive every

consideration for their bodily comfort; that no operations be made, except with the sanction of the director of the laboratory; that animals be anesthetized and rendered incapable of receiving pain in all operations, except in those in which anesthesia would defeat the object of the experiment, and finally that animals be killed painlessly at the conclusion of the experiment. These rules are most rigidly enforced and laboratories throughout the country are open to inspection by anyone interested from a scientific point of view, or from the point of view of control of this work.

If it be true, as has been said again and again, that science is the hope of the future for the progress of humanity, those who obstruct this progress by needless and unwarranted follies should be considered as subjects for mental investigation, or else as misguided sentimentalists whom one condones, but whom one does not take too seriously.

CHAPTER X

THE TRUTH ABOUT REJUVENATION

I

In the latter half of 1920 a publisher in Berlin printed a volume by Prof. Eugen Steinach of Vienna, "Rejuvenation Through Experimental Revivifying of the Senescent Puberty Glands." It may be taken as the opening gun in the great international scramble for priority recognition in the alleged discovery of the profound secret of restoring lost youth and youthful vigor. Alas, as one reads the scientific data of the discoveries and compares it with the discussions that appeared in the newspapers, one begins to wonder where the facts of the scientist actually end and where the dreams of the inspired theorists and the exuberant journalists begin.

At a certain period the child begins to develop those characteristics and symptoms that are the definite signs of its sex. The voice of the male deepens; the first inklings of that hairy adornment of his upper lip, which is to give him a great deal of concern later, begin to appear and the boy begins to take a hitherto neglected interest in the female of

the species. On the other hand, the previously angular, giggling, screeching girl begins to develop artistic curves, her hair goes up, her skirts go down —or they used to—and the first signs of womanhood appear. The stage is known as puberty.

II

It is the belief of medical scientists, based on well founded observations, that the symptoms are due to influences coming from the glands commonly called sex-glands. The evidence as to the influence which these glands have on the virility of the male and the femininity of the female is definite. When the glands are removed from a male he begins to develop feminine characteristics. When the glands are restored by transplantation he has a temporary return of male characteristics. This has been proved by experiments on birds, fowls, rodents, mammals, monkeys and men. It is a fact.

The statement just made has to do with the functions of the male and female glands aside from their production of the material responsible for reproduction of the species. The glands consist essentially of two elements: that part responsible for the reproducing elements and that part of the tissue lying between them. It has been a subject for scientific

argument as to which of these parts is responsible for the sex-defining purpose, and it is an argument not yet settled.

It has been shown by many investigators that it is possible to transplant a sex gland from one of a species to another of the same species. The results of such transplantation have already been mentioned. Such operations have been repeatedly done in this country and the effects recorded in medical literature.

It was Voronoff's contention that such transplants will produce rejuvenation of the elderly. He also suggested the possibility that the glands of the anthropoid apes, those most like man and presumably most closely related to him, would serve almost as well. It has, however, been possible to obtain enough human glands for transplantation, and unless the demand should become extremely great, it is probable there will be a sufficient supply. Indeed, the more one reads the more one becomes convinced that probably the supply will be far in excess of the demand.

Now it is the claim of Steinach that when a male animal is operated on by cutting the duct leading from the sex gland, and when the elements which account for reproduction degenerate and the interstitial elements increase, the animal is rejuvenated.

The operation has been done upon animals and upon human beings. Steinach found, for instance, that normal rats lived for more than twenty-six months, on an average, but that rats which had been operated on in the manner mentioned lived for thirty-six months in many cases. On the other hand, two other good investigators, Slonaker and Donaldson, say that the normal duration of life in a number of rats which they observed was forty months.

A possible fallacy underlying all these experiments on rejuvenation in animals, as F. H. A. Marshall of Oxford University points out, is that the result of any nutritional or environmental influence is not easy to determine and may be neglected.

Again, Mottram and Cramer have shown that when the reproductive elements of the gland are destroyed the animals put on weight more rapidly, and in fact tend to become fat. It is suggested, indeed, that the depositing of fat in a senile body may be the real basis for the claims of rejuvenation in appearance following the Steinach operation.

III

Neither the Steinach nor the Voronoff methods promise much for the rejuvenation of old women. The tests on human beings have been made by fol-

lowers of Steinach almost wholly with men, for it is conceded that thus far results with women have not been even particularly promising. These results have been reported by Lichtenstern, by Schmidt, by Sand, and others.

To the uncritical reader they carry conviction that the goal for which Faust traded his immortal soul, and for which Ponce de Leon sought unsuccessfully, has been found. Again, however, when one begins to analyze carefully, to separate the proved from the unproved, the impression from the evidence, the psychologic from the physical, one finds that far more proof is necessary before even a hope can be offered that a method of rejuvenation has been found.

It may be well, at this point, to call attention to some reported instances in which the results raise the shadows of a fearsome doubt. In May, 1921, a man, 72 years of age, was scheduled to lecture in London on the subject, "How I Was Made Twenty Years Younger by Eugen Steinach." He was found dead in bed the morning before his lecture.

Professor Zeissel, also of Vienna, a noted scientist 69 years old, submitted himself to the Steinach operation and published his experience in the *Vienna Medical Journal.* The only change which he noted following the operation was a lessened sexual power

and interest. Perhaps there was something to the fact that the scientific mind is not so much subject to the "will-to-believe."

The cases of rejuvenation reported in the German and Austrian literature read much the same. The old man came to the doctor, tired, somewhat pursy, rather depressed. The Steinach operation was done. The old man began to put on a little weight, he felt a little stimulation—but there is no evidence that he has in any case delayed to an appreciable extent the age at which he will sing his swan song.

IV

As has been intimated frequently, both in this and other discussions of rejuvenation—particularly sexual rejuvenation—there is one factor quite constantly overlooked by the proponents of various methods. In the first place it has long been known that the feeling of weakness may exist so strongly within the patient's mind and belief that the results of actual weakness ensue. Many years ago an operation essentially like the Steinach operation was performed on many old men to relieve a condition of the prostate gland, common in old men. In not one of many hundreds of cases was rejuvenation a

result. When this was called to the attention of one of Steinach's followers, he naïvely explained that these old men did not secure rejuvenation because they were not expecting it. Apparently then it should be possible to induce such conviction without resorting to surgery.

It has long been known that sexual vigor is a composite impulse, dependent on the general condition of various plans in different parts of the body as a whole. Removal of the entire thyroid gland will cause loss of sex power, and the giving of extracts of the thyroid gland will restore it in such cases. There is an entire chain of glands within the body and since a chain is no stronger than its weakest link, the restoration of one new link will not make the whole chain as strong as it was when new.

The restoration of the function of one part of the body without a general restoration may be a serious thing. More and more science points to a certain amount of individuality in each cell in the human body. We have seen that a man is as old as his arteries. Perhaps the whipping-up of the erotic functions of the body is a serious matter for the remaining cells; certainly there has been no proof that it hinders, in any way, their gradual aging and death.

V

The man on the street may well ask what value the experiments of Steinach and Voronoff have been to humanity. The answer is that their value has been great, for they have shown that there is hope for a large number of deficient or deformed human beings.

There seems to be no longer any doubt that transplantations of glands in cases of original absence or deficiency, may have value for an indefinite period.

Has medical science then nothing to offer for rejuvenation or the prolongation of life? For rejuvenation but little; the tissues of the senile can no more be rejuvenated than can the elasticity of a worn-out pair of suspenders. But the prolongation of life is a different matter!

VI

One by one great infectious diseases and plagues have been brought under control. Fever-infested swamps and the jungle of the tropics have been freed of such menaces as yellow-fever, malaria, African trypanosomiasis, and other diseases transmitted to man by insects. Through education in the value of a periodic physical examination and through the

teaching of personal hygiene intelligent persons are being enabled to live more safely and more comfortably. The death rate of tuberculosis has been reduced by more than one-half, typhoid fever no longer menaces communities which are willing to pay the price for good milk supply, good water supply, and proper sewage disposal; inspection of fresh and prepared foods has practically abolished the menace of diseases formerly transmitted in this manner. Special attention given to the problems of infant mortality has reduced the death rate in the earlier years of life and an infant coming into the world today has a far greater expectancy of life than did one coming into the world fifty years ago. The child that might then have expected to live to somewhere between thirty-five and thirty-nine years of age may now confidently look forward under all ordinary circumstances to reaching the age of fifty to fifty-five years. What hope, then, of giving that child an opportunity to reach its allotted three score and ten?

Everyone knows from his own casual observations that a great many more people are living to a ripe old age nowadays than did formerly. Indeed these observations are the exemplification of the statistics that have been cited as to life expectancy. The diseases that still remain to cut down the human being

at an age previous to the time when he might reasonably expect to depart this life through the actual wearing out of the machinery which is no longer able to renew itself, include at this time particularly the diseases of the heart, blood vessels and the kidneys. Such conditions as Bright's disease, a chronic inflammation of the kidneys, as hypertension exemplified through high blood pressure and the symptoms that accompany it; as arteriosclerosis, or hardening of the arteries; as angina pectoris and inflammations of the lining of the heart and of its valves;—all such conditions constitute a problem which the medical profession must meet and which it apparently cannot meet properly without the complete education and coöperation of the public. Here are diseases whose prevention seems to lie in the prevention of the infections of the throat in childhood; in the training of the child and man in the proper hygiene of the nose, throat and intestinal tract; in the teaching to the adolescent and equally to the adult of the desirability of a quiet, well-ordered existence with a proper amount of food, of exercise and of rest; and not the least by any means, in letting people know that there is such a thing as mental hygiene, including relief from worry or mental strain. And then there is pneumonia, a disease likely to affect the older man much more severely than the young one, called

indeed "the old man's friend" for the quick death that it produces in the senile, and the "captain of the men of death" for its severely fatal character. The complete conquering of this infection seems somehow to be resting on the threshold of the future.

It is the belief of several competent statisticians who have given careful consideration to the matter, that when these diseases are brought under control, the life expectancy will be moved forward at least another five years but probably not a great deal more. The trend of modern life seems to be toward speeding up, toward greater mental strain and almost ceaseless activity. If, coincident with such speeding, medical science is still able to promise another five years of life expectancy to the phenomenal number of years that have thus far been added, it will have accomplished a marvel beyond the dreams of medical scientists a half century ago.

CHAPTER XI

"PHYSICAL CULTURE" AND BERNARR MACFADDEN

THREE types of persons are interested in health: those who are well; those who are sick; and those who are well but who think they are sick. In these times, the interest of those who are well is present, albeit apparently somewhat slight and casual. The interest of those who are sick is intense, but transitory; when they are well their interest tends to lessen.

The interest of those who are well but who think they are sick is constant and pitiful; they form the substance on which the "patent medicine" mongers have thrived since time immemorial; they constitute, in large part, the great audience for false prophets of health, as well as for those who are attempting to give honest information about the body and its care in health and in disease.

With this introduction, let us consider some of the medical articles appearing in what is alleged to be a non-medical periodical, namely, Mr. Bernarr Macfadden's *Physical Culture,* and the type of fiction

and general literature issuing from the Macfadden press. If Mr. Macfadden were to content himself purely with preaching the gospel of simple diet and adequate exercise, one could have no fault to find with him, except that he utilizes the erotic appeal in his teachings.

The manner in which the sex appeal is used by the Macfadden periodicals has been duly criticized by numerous observers, and perhaps nowhere else so well as by N. H. Bowen, in a brief discussion in the Detroit *Saturday Night.*

Mr. Bowen says, in a consideration of the Macfadden string of periodicals: "The important thing to note is that in every one of these stories the suggestion is of something relative to sex; in fact, these two magazines reek of sex."

It needs no reading of the Macfadden publications to convince any sound observer that the appeal of all of them is sexual and erotic. The covers, invariably in the gaudiest of colors, are devoted to pictures of women in various stages of nudity, always sufficient, however, to avoid conflict with the postal authorities. The illustrations place emphasis on the beauties of the salacious and the cabaret, rather than on the higher types of art which have less sex appeal. Even the illustrations of the crude stories that form the basis of the Macfadden litera-

ture are the old male and female struggle type or the slow fadeout rigid clasp that featured the movies in their earlier and rawer stages.

The fiction of the Macfadden periodicals is quite frequently of the so-called confession type. Perhaps these confessions are true, but if they are, their appeal lies, not in their truth nor in any moral lesson that they may teach, but in their essential suggestiveness. Of literary value they have none, and their duration is as evanescent as the paper on which they are printed.

However, we are concerned here not so much with the exceedingly low scale to which the Macfadden literature is pitched, as with the false campaign of health which his periodicals promote.

It does not suffice Mr. Macfadden to prove that good health may be achieved through proper diet and proper exercise; he seems to feel that in promoting these desiderata he must attack those phases of the scientific care of the body that lie within the purview of the scientifically trained physician. In *Physical Culture,* he attacks primarily those who use methods and knowledge which are not available to him through the fact that the law is inclined to protect the public by guaranteeing to some extent the sanctity of the M.D. degree.

In his campaign, Bernarr Macfadden aligns him-

self with the borderline cultists that oppose scientific medicine and devote themselves to the promotion of some single conception of disease causation, prevention and treatment.

One finds him promoting actively the interests of the manipulative cults, including chiropractic and osteopathy; of the Abramsites, with their fantastic electronic conception; of the naturopathic cult, with its emphasis on barefoot walking in the morning dew; of colonic flushing and vegetable diet; of the antivaccinationists and antivivisectionists; of the fanatical groups that feel that their personal beliefs are more important than the good of the community; and, indeed, of any of the extraordinary fads which have risen for a moment above the horizon of medical practice only to sink rapidly into oblivion.

It would be possible to go through previous volumes of the health faddist's monitor and to select therefrom articles showing how Mr. Bernarr Macfadden has lent himself to the promotion of dozens of now discredited notions. This, however, is unnecessary at this time, since Macfadden has himself indicated his willingness to promote every new notion—it would be beyond the mark to call them ideas. It is, moreover, necessary only to refer to a few issues of *Physical Culture* to see the type of science which Mr. Macfadden is willing to accept.

In one number, one finds a defense of the now completely discredited Albert Abrams, by the completely deluded Upton Sinclair; a defense of naturopathy, by Bernarr Macfadden; and a defense of the unestablished views of W. H. Bates, who believes that it is possible to train a deformed eye to see without glasses, again by no less an authority than Bernarr himself.

There is also an article showing that bobbing of the hair makes women bald, without the slightest basis in scientific proof—certainly with no actual evidence.

Moreover, two issues contain a symposium devoted to the triumphs of osteopathy, without any recognition of the fact that it never has been shown that the very conditions which form the basis of osteopathy actually exist.

With a peculiar disregard of his own constant and unwarranted attack on medical science, Mr. Macfadden employs, to bolster his views, such physicians as are willing to take a few dollars for writing articles for the Macfadden magazines.

It should be obvious to any logical-minded man that a physician who has even an ordinary ability to interpret what he reads will know that the Macfadden periodicals are devoted largely to an attack on

scientific medicine, and to discrediting not only the modern treatment of disease but also the campaigns for the prevention of disease carried on by scientific medicine. These campaigns, history shows definitely, have cleared up the plague spots of the world and resulted in the saving of millions of lives wherever they have been applied. It should be obvious to any physician that the lending of his name and his M.D. degree to the periodicals of Mr. Macfadden constitutes a definite departure from his scientific training, and certainly from the ethical ideals which were conferred on him with his medical education. It is perhaps the boast of Mr. Macfadden that he has been able to secure a few—fortunately only a pitiful few—physicians who are willing to contribute to his pernicious propaganda.

In July, 1924, one finds articles by Edmund C. Gray. It is true that Edmund C. Gray has a medical degree. What other qualifications he may have are not apparent from anything in his history. He was graduated, it appears, from the Bennett Medical College, Chicago, in 1914, apparently without preliminary education in a college or university. He was licensed to practice in Illinois in 1916, and in Connecticut in 1920. His name appears in no medical directory until 1918, so that his movements in the interim are unknown. However, in 1918 he was

at Greensburg, Ind.; in 1921, at Bridgeport, Conn.; in 1923, at Stamford, Conn. Possibly his practice was not extremely successful in any of these places; and, apparently, at present he is devoting his time primarily to enlightening the readers of the Macfadden periodicals.

In the same number there appears also an article by Lee Alexander Stone. To this article the blurb writer of *Physical Culture* appends a note that Lee A. Stone is a surgeon in the United States Army with the rank of lieutenant-colonel. The Surgeon-General of the United States Army has taken pains to inform physicians that Dr. Stone is not in any way connected with the medical department of the Army, but that he holds his rank in the Military Intelligence Reserve Corps.

There appear also in the same issue articles by Dr. Frank Crane, who, fortunately, is not a medical doctor but a reverend, and not a practicing reverend but a syndicated producer of trite aphorisms for daily papers and Babbitt-hunting periodicals. He is the apotheosis of the Pollyanna school of thought.

The August, 1924, number contained articles by Dr. Ray G. Hurlbut, an osteopath; again Dr. Gray and Dr. Crane. And these, together with "Drs." Edwin C. Bowers, Graham Disbrow and Frederick Collins, who are not doctors of medicine at all, ex-

cept in so far as such degrees are conferred on them by *Physical Culture*, seem to constitute the medical staff of Mr. Macfadden's periodicals of health instruction.

Those who have, on occasions, looked into a Macfadden periodical turned but a few pages until they came upon a photograph of the "Bare Torso King" —to confer on him the title originally conferred by the Detroit *Saturday Night*.

There he stands, almost in the garb with which nature clad him, a majestic figure with lungs inflated and pompadour defying the world. His skin, if we are to believe his own accounts, is full of vigor and strength. But apparently the attacks that have been made on his motives, if not on his facts, have been sufficient to pierce even a skin strengthened by all of the methods known to the apostles of physical culture.

In particular, Mr. Macfadden seems to be worried by an editorial which appeared in the *Ladies' Home Journal,* in which the editor of that long-established periodical called attention to the evil that is being spread by sex publications. Mr. Macfadden's defense is to claim that many of the great health campaigns for which the *Ladies' Home Journal* is renowned were his own innovation. With colossal impudence he states that *Physical Culture*

began twenty-five years ago to expose the patent medicine fakers, and that the *Ladies' Home Journal* took up the fight only after *Physical Culture* had started.

And this in a periodical which today reeks with the advertisements of nostrums and fallacious health systems!

He claims further that *Physical Culture* originated the campaign against venereal disease. And this in a periodical which by its refusal to recognize the scientific facts concerning venereal disease may contribute to the spread of these diseases.

It is the belief of at least many editors that the Macfadden periodicals, with their sex stimulation and appeal, promote unchastity. The refusal to recognize that such conditions as gonorrhea and syphilis are caused by definite bacterial and parasitic organisms will help to prevent the dissemination of knowledge as to the way in which these diseases may be prevented through the use of antiseptic substances. It is this Macfadden who claims that he has contributed greatly to the war on venereal disease!

What shall one say of a man printing such a series of periodicals, filled from cover to cover with literature that is primarily sex stimulating in its appeal, when one learns that he has "appointed a board of ministers composed of representatives of all the

various prominent creeds, whose duty it is to examine in manuscript form all stories that are questionable in their moral influence."

Shall one criticize more Mr. Macfadden or the ministers who have lent themselves to his exploitation? And if the ministers referred to have passed the type of literature that appears in the most recent numbers of such magazines as *True Confessions, Dream World into the Land of Love and Romance,* and *Dance Lovers,* with a leading article by Byrne Macfadden concerning the manner in which she learned to "shimmy" from Gilda Gray, what a peculiar lot of ministers Mr. Macfadden must have assembled!

It was the view of the intelligent Greeks that the human body well taken care of is a holy and spiritual thing. The laws of health and hygiene which they promoted were such as bring the body to a high state of perfection and discourage immodesty and salaciousness in relation to health. The Macfadden gospel is essentially an appeal to a large minority of persons whose eyes are aroused by the flash of nakedness or whose weakened wills succumb to every new health fad. He has taken what should be a beautiful search for health, for vigor and for strength and made of it an ugly and discouraging thing to every right-minded individual.

CHAPTER XII

THE BIG MUSCLE BOYS

TURNING the pages of a periodical like *Physical Culture,* one might become impressed with the notion that the chief goal of man is muscle. Not that the "Bare Torso King" neglects the mind, for in the Macfadden string of periodicals was one known as *National Brain Power.*

But most of the great gospel is the lauding of strength both as a means and an end—of strength for strength's sake. And not just ordinary strength, but the kind of strength that bends crowbars between the teeth, bites chains in two, lifts a team of horses and carries five or six men posed in artistic designs, while giving huge grunts to the accompaniment of an orchestra.

Once upon a time there was only one "Bare Torso King," the pictures of whose powerful frame thrilled the multitude as he appeared clad only in a breech clout, with fists clenched and gorilla-like chest pumped out like that of a pouter pigeon. But nowadays, as one turns the pages, he comes upon coupon after coupon, inviting him to subscribe, urging him to inquire, pleading with him to be strong.

As the reader scans the advertising literature and the other material that he receives when he sends the coupon, he will observe a remarkable sameness. He will derive from his observations certain fundamental opinions as to why the exponents of muscularity are engaged in the business of selling muscle building courses and as to the kind of persons who fall for such courses.

He will probably discover that there is a peculiar appeal in the portrait of the nude that is cleverly worked on by the bare-torso gentlemen to secure their clients. He will find, no doubt, that these gentlemen are not suffering inordinately from modesty as to their own accomplishments, and he will probably become convinced that their business is one that is profitable.

Let us first glance over a few of the leaders in this unique occupation.

Introducing L. W. Albizu

Consider first Prof. L. W. Albizu. He is the inventor of the Roller Dumb-Bells—"The World's Quickest Way to Strength." He has a system; in fact, each of the bare-torso gentlemen has a system, and Professor Albizu admits in connection with the exploitation of his system that he is "the sensation of the physical culture world."

Apparently all that you have to do to become strong by the professor's method is to roll his dumb-bells up and down the wall. He does not give you a diploma, and he emphasizes this fact because some of the big muscle men do give you a diploma. Professor Albizu gives you a health and strength course at $20 cash or $22 on time, and, with it, you get a pair of dumb-bells.

Of course, he has a question blank, because mail-order physical culture, these gentlemen all carefully explain, can only be properly conducted on those who are sufficiently healthful to stand the rigors of the exercise. Still it is advertised to make the weak man strong. But Professor Albizu is not unduly curious. Chiefly, he wants to know your measurements, if you have ruptures, if your neck is short or long, and if your collar bone shows when you stand naturally.

Introducing Charles Atlas

Alphabetically we come to Charles Atlas. Somehow Atlas is such a good name for a strong man that one hesitates to believe it a real one; but maybe it is.

Atlas occupies almost a page with his advertisement in *Physical Culture*. He offers "Health—

Dominating, Wealth-Winning Health." He emphasizes "Big Powerful Muscles," and he tells you that Atlas-trained men are "Personality" men. "My system," says Mr. Atlas, "is the last word in Health and Energy Building." "I give only actual instructions, high-powered secrets [All of these mail-order Samsons have secrets] that do get the quick and certain results. And who could be Better qualified to teach you these amazing secrets than the World's Most Perfect Man?" Curiously, each of these bare-torso gentlemen is the world's most perfect man.

So you clip the coupon and send for "Secrets of Muscular Power and Beauty." It's free—absolutely free. "Scores upon scores of vital, inspiring pages of information and beautiful art pictures yours FREE." [All of these bare-torso gentlemen emphasize the beautiful art pictures that are free.] We will not try to duplicate the different kinds and sizes of type that an Atlas advertisement uses; our printers might object. But besides the type, there is a little insert that tells you about your chances to get free "seven large photographs of myself" as well as "cash prizes, expensive trophies and beautiful diplomas." Where is the farmer's boy or the dry goods clerk that could resist an appeal like that?

The reader sends the coupon and the Atlas book comes. A letter comes also with more capital let-

ters than a Hearst editorial. Charles Atlas tells you in the mimeographed personal letter that he himself is full of "boundless energy," "great power," "wonderful strength," and "radiant, vibrant health." He is glad "for your sake" that he has it and can transmit it to you. No apparatus is required. He pleads with you to send $30 cash or $35 on time in payments for his course. To prove to you how good he is, he encloses some circulars showing four or five other gentlemen with clenched fists, puffed out chests and breech clouts, breaking up iron chains and posing for Ajax defying the lightning. These bare-torso gentlemen, it seems, are graduates of Mr. Atlas' course. And ah! how Mr. Atlas pleads with you in connection with each of these photographs. Indeed, he rises at last to these heights of beautiful sentimentalism:

WHAT WILL THEY THINK OF YOU?

Your sweetheart—you know what kind of a man she expects you to be. Are you going to disappoint her? Will you let all her dreams about her lover fall to the ground? She wants you to be a virile, manly man, full of strength and power, able to protect her. Your mother—she expected great things of you. She hoped you'd grow up a splendid example of vigorous

manhood. Don't let her hopes of you be shattered. Resolve now to make something of yourself. Refuse to be a weakling. Health and strength can now be yours.

The confidential question blank with the questions compiled by Mr. Atlas, or his advertising agent, seems to be calculated particularly to appeal to the psycho-asthenic and hypochondriac.

Mr. Atlas wants to know, among other things, if you are "nervous or fearful?" "Despondent, angry, worry, irritable at times?" [Who isn't?] "Have you any harmful habits you wish to overcome?" [This is the old appeal, based on ancient beliefs as to the dangers of certain sexual habits.] "Is your will power weak or strong?" "Are you sexually weak?" "Are you timid, shy, bashful?" And so on and so on!

And then, "If you really crave Superpower, Glorious Health, Uncanny Strength, Tremendous Nerve Force and a Perfectly Developed Body Mail This Enrollment Blank Right now."

So much for Mr. Atlas!

Introducing Mr. Breitbart

Mr. Breitbart, ladies and gentlemen! He has learned "not only the wonder of being strong but

the *secrets*—the knack—of acquiring tremendous strength." In fact, his system has given him "such marvelous strength that people refer to me as the Superman of the Ages."

We warned you, reader, that these bemuscled gentlemen were in no sense to be compared with the modest violet. But Mr. Breitbart shames the chrysanthemum or the rhododendron:

> There is nothing else like my method and there is nothing else that will as quickly or surely give you the big, bulging muscles and crushing strength that every red-blooded man wants.
>
> See what I have been able to accomplish myself, by the use of this system. I support more weight than any other man. I drive heavy nails through many layers of oak and iron with my bare hands. My muscles are trained. I am able to bend heavy steel bars into carefully worked designs. I perform feats of strength that astonish thousands with the sheer power of muscle that my system has given me; and this same method can give the same power to you.

Like Mr. Atlas, Mr. Breitbart has secrets; he not only has his own secrets, but he admits that he knows everybody else's secrets. And he continues

"mine is a new and far better method, unlike any you have ever seen or heard."

All you need to do is to send for Mr. Breitbart's new book. He has been offered real money for this book, he tells you, but he is willing to give it to you for a dime to cover the cost of mailing. Send him a dime at once, and you will get not only his book but also "Breitbart's Muscle Meter" FREE.

As can be imagined, for your dime you get quite a package. You get first Mr. Breitbart's book entitled "Muscular Power," showing on its cover Mr. Breitbart in the act of pulling open a tiger's mouth. Now that's the kind of accomplishment so many of us need; Mr. Breitbart does this sort of thing quite as a matter of routine.

Next you get to see a picture of Keith's Theater in which Mr. Breitbart performed; then you get to see Mr. Breitbart and his muscles from the waist up, including also a most aggressive pompadour.

Then comes the text matter with such headings as "Muscle Rules the World," which tells you that exercise and muscle building make success. By this time, evidently fearing that he may be thought a braggart, Mr. Breitbart coyly makes this little disclaimer:

> I do not wish to be thought egotistical or go about shouting and blowing my own horn. I

> leave such self praise to others and I hold myself far above such cheap and unbecoming practices. I determined in this book to let others tell you all about myself.

Then follows page after page of clippings about Mr. Breitbart and photographs of Mr. Breitbart when Mr. Breitbart was on the vaudeville stage. There is Breitbart breaking a heavy iron chain with bare hands—with a closeup of the chain—Breitbart bending and coiling a one-half inch thick iron bar around his arms with bare hands, Breitbart biting through a heavy iron chain which six husky men were unable to break apart; Breitbart resting on a bed of nails supporting a bridge with a man and an ox weighing over a ton.

And so on and on and on interminably: Breitbart after Breitbart—and muscle after muscle, until at last one comes to the pages of testimonials and the photographs of the pupils, and the final plea to "Fill out and mail the enrollment blank at once."

We were convinced that Chas. Atlas was the world's most famous man, but here is Mr. Breitbart's claim.

> Muscle by muscle, inch by inch, Breitbart easily outstrips every claimant to Strength and physical development—surely he is the Superman of the Ages.

Nevertheless, Charles MacMahon of Philadelphia, about whom we shall speak later, outstrips Breitbart—he doesn't even wear a breech clout.

Mr. Breitbart's free "muscle meter" is a piece of red paper that you paste around your biceps muscle. Then you bend your arm and if your muscle is as big as Mr. Breitbart's you can break the paper. We refer here not to the strength of the muscle but to its volume. Mr. Breitbart isn't stingy. He gives you a paper tape measure in addition to the "muscle meter," and he gives you a money-order blank all filled out ready to send him $25 cash or $26 on time. Mr. Breitbart also has a confidential information blank in which he inquires if you are subject to colds, asks about your appetite and if your temperament is nervous and emotional, or quiet and steady. Naturally Mr. Breitbart has to know these things to plan your course.

Introducing Earl Liederman

Mr. Earl Liederman offers you ten more years of life. "I don't claim to cure disease," he says. "I am not a medical doctor but I'll put you in such condition that the doctor will starve to death waiting for you to take sick."

Earl Liederman fixes you up in ninety days and

he requires two pages of advertisements to tell you about it—one devoted to Mr. Liederman *a la naturel* and the other to his announcement. When Mr. Liederman is through with you you are a real man, he says. He tells you about your deep, full chest, your huge, square shoulders, your massive, muscular arms, the flash to your eye and the pep to your step.

All you have to do is to send for his booklet "Muscular Development." It contains, as by this time you will have come to expect, forty-three full page photographs of himself and his pupils. There are the bare-torso photographs in every conceivable posture, and there are six bare-torso pupils. Then at last there is a letter asking $28 in cash or on time. It is the same old postal money-order blank, the same old imitation personal letter, the same old questions and the same old mention of the necessary apparatus. And, if you fail to bite, finally there come to you week by week the same old follow-up letters.

Charles MacMahon

You have been told that Charles MacMahon outstrips them all—at least so far as shown by the pictures in his little booklet. As you might easily have

anticipated he has a little booklet. All the mail order Herculeses have little booklets. If you sent for Charles MacMahon's little booklet, it was probably in response to the "ad" in which he cautions you not to be a "flat tire."

All of the emphasis in the "ad" is on flatness. If you have a flat chest, he offers to puff you up; if you have flat feet, if you have a flat pocketbook—but no, it seems he doesn't fix flat pocketbooks. He merely says that ill health means a flat pocketbook and he is going to save you all the expense that ill health entails by putting you in A-1 physical condition. Indeed, flatness appears to be an obsession with Charles MacMahon: "I Flatly Refuse to Let You Pay One Cent," he says in big type, but he continues in little type "either on my booklet, my pamphlet, or toward defraying my expenses of wrapping, postage and the labor of getting them to you." But when you do get them, then comes your opportunity to spend money.

First, there comes the page of bare-torsoed gentlemen who—we are asked to believe—have taken the MacMahon course; also the testimonials of these Samsons. Next there is the little booklet entitled "The Royal Road to Health and Strength" by Charles MacMahon. Here and there among the many photos of Mr. MacMahon which illuminate

every other page, one finds remarkable statements. For instance on page 6, the text reads:

> A man with a squarely built, well muscled waist rarely suffers from disease of the digestive and dissimilative organs.

We have been trying to find out what a dissimilative organ is; the word intrigues us.

Charles MacMahon learned his technic from the Hindu wrestlers, so he says, and he specializes on the legs and the waist. This is Charles MacMahon's "system." All the bare-torso gentlemen have "systems" in every sense of that unusual word. He also has an apparatus, although not a rubber or a spring apparatus. You may have noted that these exponents of the science of physical culture have been unable to agree on the desirability of apparatus or on any one apparatus. Indeed no two of them have agreed. Every bare-torso king has an apparatus all his own.

Mr. MacMahon offers you nine separate lessons at intervals of ten days. With each lesson you get a set of separate pictures. The price is $30 and it includes the necessary apparatus. If you pay $24 cash you get the new $30 tumbling and hand balancing course free. Suppose you don't accept right

away. Let us tip you off. It will be to your advantage. Wait for the second, or third, or fourth, or fifth offer. If you wait long enough Mr. MacMahon throws in more courses, personal service and a magazine subscription.

Finally, may we point out that the MacMahon question blank asks only for measurements and doesn't even make a pretense of finding out if the applicant ought to be indulging in strenuous exercises? Perhaps it is quite suitable for Mr. MacMahon to lift up the columns of buildings and to toss around 200 pound weights. But how about the man with high blood pressure, arteriosclerosis, or disease of the heart? Does Mr. MacMahon care? Or does he take the attitude that the fellow who wants to spend $30 and take a chance at rupturing a blood vessel or overstraining his heart, should have that privilege?

Michael McFadden

This gentleman modestly admits that he is the "Champion of Champions." His name is McFadden. For $8 he sells you the McFadden Patented 10 Cable Progressive Exerciser. He offers also the Patented Progressive Handles, the Patented Pro-

gressive Stirrup, the Patented Progressive Head Gear, twelve weeks' Home Instruction Course, "most wonderful ever written—the kind you cannot get elsewhere"—more secrets, you see!—and finally the Michael McFadden Encyclopedia.

All of this, which he alleges is worth $30, he offers for a trivial $8, and he guarantees to increase your biceps one full inch in from thirty to ninety days and all other parts of your body in proportion. His guarantee, he says, is backed by a $10,000 challenge. Further than this deponent sayeth not!

His saffron colored circular shows some fourteen bare-torso gentlemen in various stages of bareness, presumably all brought into muscular beatitude by exercising regularly with the McFadden Patent High Tension 10 Cable Progressive Exerciser, with a resistance of 10 to 200 pounds. One thing about Mr. Michael McFadden—if you don't answer him right away he apparently is willing to let you suffer. You will not have your mail box cluttered up by the weekly or semiweekly follow-up letters. Mr. McFadden lays little stress on his course; his stock in trade seems to be chiefly the name that one conjures with in the mail order physical culture world and the Patented High Tension 10 Cable Progressive Exerciser and other "Progressive" things.

Introducing Lionel

Of all the mail order strong men Lionel Strongfort most merits discussion in matters of health, for he appeals to the fears of the sick and the neurasthenic to a greater extent than do any of the others. The literature that he circulates and his follow-up letters emphasize sexual weakness to the point of nausea. It would be unsuitable to reprint them even for the sake of proof in a discussion such as this. Letter after letter in his series emphasizes sex and virility and lost manhood. Evidently the promoters of "Strongfortism" have found that there are a sufficient number of psychasthenics with fears as to their sexual powers to make the appeal a drawing one.

The Strongfort course is built around his resistance increasing dumb-bell, "a triumph in athletic apparatus." "The Strongfort is without doubt the handsomest dumb-bell on the market" urge the circulars.

The Strongfort question blank is about like the others, except for this question, masterly in its barefaced, impudent departure from the facts:

> Any white spots under your finger nails? (Indicating Uric Acid in the system)

There is an attempt to play upon the old uric acid bugaboo by frightening everyone who has white spots on his finger nails. And who doesn't have them at one time or another? The fact that the white spots have no more to do with uric acid than with carbolic acid doesn't worry Strongfort.

Besides the Strongfort blank again and again emphasizes "secret habits" "virility," "night losses" and other sexual matters.

The Strongfort booklet—he has a booklet—is a remarkable concoction of mendacity, attacking well-nigh everything except Strongfortism so far as relates to health and the control of disease. It is illustrated by the usual bare-torso photographs, the oak leaf serving the demands of modesty furnished in the other bare-torso booklets by the surcingle, leopard skin or air brush of the photoengraver. The keynote of Strongfortism aside from the "Resistance Increasing Dumb-bells" is "internal and external muscular harmony." Once everyone has achieved this desideratum by the course and the dumb-bells, the millennium will be reached. Following are a few modest Strongfortisms:

> Strongfortism is a panacea for all habits that arise from physical weakness, as all bad habits do, because Strongfortism builds up Strength

that resists such habits. There would be no need for Prohibition laws on liquor or any other vices if everybody practiced Strongfortism.

Strongfortism is the key which unlocks Nature's storehouse of vital energy. It reaches and develops the inner muscles which control the vital organs, generating the Life Forces.

The weakling is developed and inspired with the mastery of mental power and physical perfection—the glorious crown of MANHOOD. The dyspeptic and neurotic, whose system is racked by disease, finds rebirth in the quickening pulse of a revitalized body, vibrant with health and energy.

A person who is rendered immune through a Course in Strongfortism is safe against Colds, Epidemics and all kinds of diseases, whether catching or otherwise, simply because his internal system is in harmony with the external—every set of muscles works one with the other —every organ is regular and this rhythmical kenetical action gives a volume of vital force which repels every kind of disease. It is the man in ill health or whose vitality is low that is susceptible to Catarrh and all kinds of diseases.

Of all the preposterous medical hokum we have ever read, nothing has crossed our vision to equal that appearing in the literature of Mr. Strongfort. If ever superlatives were justified they are justified in discussing his work in relation to that of the other bare-torsoed gentlemen in this series. According to our investigation:

He puts the most stress on sex.

He attacks the most other instructors.

He sends the most follow-up letters.

He makes the most medical claims.

He makes the most extravagant promises.

In only one way is he outstripped and that, as has been mentioned, by Mr. Charles MacMahon.

Prof. H. W. Titus

Here we are at Professor Titus, last of the series, and ready to confess that reading the claims of these physical culture mail order promoters has made us tired. We have apparently overexercised. We get no kick out of the literature of Professor Titus.

The fact that he announces himself as "The Most Successful Director of Physical and Health Culture in America" does not seem to thrill us. When he asks, "Do you take pride in your personal appearance?" our flagging energy does not revive. His

offer of a complete course of Lessons with the Progressive and Automatic Exerciser for $15 down, $5 in thirty days and remaining $5 in sixty days does not strike our fancy. Even the yellow ten dollar reduction check that comes with the fourth or fifth follow-up letter makes no appeal. Actually the literature and the claims of all of these bare-torso gentlemen leave us in a muddle.

One of them curses roundly all other courses that use apparatus; the spring apparatus proponents vilify the rubber band stretchers; the rubber band stretchers attack the spring benders; the dumb-bell workers roast the spring benders and the rubber stretchers; the roller dumb-bell advertiser says the standing dumb-bells are worthless and the standing dumb-bell promoter announces vigorously that they won't roll off the table. Mr. Strongfort tells us that anybody that bites chains in two is a fake; Mr. Breitbart shows how he bites the chains; Mr. MacMahon develops the waist muscles—that's the secret —but Mr. Strongfort develops the internal muscles; then, too, you will remember Mr. MacMahon concerns himself with the "dissimilative" organs.

If we are to indulge in these strenuous exercises and indoor sports why not find out first through some sort of physical examination whether or not we are fitted to undertake the stunts of these physical cul-

ture professors? Mr. Thomas Rice of the *Brooklyn Eagle* has recently looked into the control of these mail order physical culture courses and the muscle exploiting gymnasiums. He says:

> Under present conditions, anybody may set himself up as a physical culturist. Not only that, he may advise his clients, or whatever he may choose to call them, to pursue a course that must inevitably shorten their lives, and no check at all may be placed upon him.
>
> Any boxer, wrestler, football player, runner, shotputter, etc., who has passed out of competition is privileged to open a gymnasium and tell the world that he is capable of giving fit instruction to all comers, regardless of their present apparent health or their past history. . . .
>
> What may be excellent for the athletes in their prime may be dangerous for the immature boys, and may be absolutely fatal for the middle-aged and elderly, but hundreds, if not thousands, of the "professors" do not know that, and many would not care a hoot if they did, so long as young, middle-aged and elderly paid their fees promptly.

Mr. Rice is evidently an astute gentleman; he has noted that the matter of paying the "fees promptly" has a great deal to do with the work of the big muscle boys.

Ah, well! Enough of this! The great outdoors beckons; the golf links, the swimming pool, the base ball diamond, the tennis court, and the cinder path call us. The sand dunes and the woods make their bid for our patronage. What price then these rusty springs, these roller dumb-bells, these rubber bands?

CHAPTER XIII

THE MEDICAL MISTAKES OF THE PRESS

I

FOR some ten years, the *Journal of the American Medical Association* has published each week a column called "Tonics and Sedatives" in which appear, in addition to medical facetiæ, errors of a medical nature clipped from newspapers throughout the country. Glancing over the assembled material, one finds that it may be grouped according to certain definite types. The first are minor errors in so far as they may do any harm to anyone. It has seemed to the physicians of the country that according to modern newspaper methods a hasty guess is good enough to serve the purpose so far as the name of a disease may be concerned: "Miliary tuberculosis" frequently appears as "military tuberculosis"; "hypostatic pneumonia" as "hypothetic pneumonia"; "exploratory operation" as "explanatory operation"; "cardiac decompensation" as "cardiac decomposition"; "vertebra misplaced" as "vertebrate misplaced"; "vasoligation" as "vasolitigation"; "cocci"

as "cockeye"; "prostate gland" as "prostrate gland"; "iritis" as "eyeritis"; "angina pectoris" as "angora pectoris"; and "inguinal hernia" as "lingual hernia." These errors, as may be seen, fall into a definite group. They all represent the substitution of some word in common usage for a technical term requiring special knowledge. They are perhaps the inevitable result of that system of news reporting which calls for eight editions each day, appearing three to five hours before the time with which they are labeled. They result possibly from that queer triple play, leg-man to telephone to rewrite man, by which most of the local news is put out.

In matters of anatomy, organs, muscles, bones and joints may find themselves strangely displaced in newspaper reports. The fibula, from the leg is accredited to the hip. One reads of a "mastoid abscess of the eye," whereas the mastoid is situated behind the ear. Persons are reported as dying from pleurisy of the shoulder and collar bone, of the kidney, of the heart, and of the intestines. The pleura is the membrane lining the chest cavity and covering the lung. It is spelled p-l-e-u-r-a, as can be found in any dictionary, and yet it far more frequently appears that someone has died from "p-l-u-r-a-l" pneumonia, certainly a singular statement. During the illness

of President Wilson, the official bulletin, published in Washington under the editorship of George Creel, created to supply the public with facts, contained in a boxed statement on its first page, the following absurd announcement:

> "Owing to the various rumors that are going about regarding the condition of President Wilson, we state that he has not had a paralytic shock, nor has he had any of the other troubles about which the gossips are busy. The President is suffering from inflammation of the prostatic gland, which is properly known as acute bowel trouble."

If "inflammation of the prostatic gland" is properly known as "acute bowel trouble," the medical profession has been wrongly instructed about the matter ever since it first found out there was a prostate.

Still more remarkable statements are made as to the causes of various diseases. The excellent foreign correspondent of the Chicago *Tribune,* Floyd Gibbon, recently cabled that lock-jaw or tetanus was prevalent because of the large number of rusty nails. Thus he perpetuated an old superstition and disregarded entirely the bacterial origin of the disease. The Kansas City *Times* remarked sagely:

> William II has a bad inheritance. His great uncle, Frederick William IV died with a clouded mind. William himself has had an ear abscess, the true diagnosis of which has never been made public. This has given ground to a rumor that it is of a hereditary leucorrheal character.

Leucorrhea, it may be explained, is a condition occurring only in women, and that, too, in regions remote from the ear. The error arose no doubt through the modest substitution, by some editor of the word "leucorrhea" for the name of a venereal disease which sounds much the same and which he hesitated to print.

In surgery the newspaper writer has wide latitude for his imagination. The Baltimore *Sun* sagely explains that "gastroenteroanastamase is the medical term for ulcers of the stomach" but "gastroenteroanastomosis" is instead the surgical term for sidetracking the movement of food by joining together the stomach and the intestine. Another item tells of a man who was operated on for "Albee of the spine" whereas Albee is the name of a surgeon who designed the operation in which the bones of the spine are splinted stiffly together with a piece of bone taken from the leg. At least a hundred times, I have seen the statement that a leg was broken, but

not fractured, and one does not have to be a physician to know better than that.

Certain remarkable tales circulate through the press periodically much as an influenza epidemic returns at intervals to devastate the populace. A news bulletin will carry the astounding information that a noted specialist has cured the eyesight of a patient by removing the eyeball, washing it or scraping it, and returning it to its cavity. Again some press service will circulate this perennial tale. It is a figment of the imagination and possibly arises from the fact that an untrained onlooker at the ophthalmic operation becomes dizzy with the escaping fumes of the anesthetic. Here is a story that has recently made the rounds of hundreds of papers:

> There is a girl here at the Shrine hospital about fifteen years old, who has a snake in her stomach. They have no idea about how it happened to be there, but the doctors think that it must have crawled in her mouth when she was sleeping or in swimming some time. The snake is about two feet long and three inches around, and sometimes they say it is stretched out as far as it can in her stomach.

The number of amphibia, reptilia, and other zoological species that have been reported in the news-

papers as the day's catch for some enterprising physician is legion. Sometimes they are not hooked out of the stomach from above, but removed at other orifices as the product of an unusual conception. When the stories are traced to their respective sources, they invariably degenerate into some hoax. In one case, it was discovered that some of the older nurses in a hospital were anxious to impress an innocent probationer with the wonders of medical science. The assistance of an obliging interne—the interne is always willing to oblige the nurses—was secured. At the time of the operation, the interne drew forth a squirming length of rubber tubing, the probationer was duly impressed, and a news-seeking reporter sent the story on its route.

A paragraph might be given to the story of the feverish girl of Escanaba; for almost three weeks her temperature was reported as ranging up to 118 degrees F. and once it was alleged, the mercury blew off the top of the thermometer. Her story was not unique in the annals of medical science. Almost any hospital could produce records of patients who had attempted similar impostures and successfully eluded the detective methods of physicians over long periods of time. In the case of the girl from Escanaba, the long run of the story depended on a number of factors: the news came from a distance sufficient to

deter investigation; the girl was not in a hospital where her actions could be controlled; her physicians had lost their skepticism which the great Pasteur said was the distinguishing mark of the scientist. Finally the news was handled by the Associated Press, an agency which editors have come to trust implicitly and which is ready to assume responsibility. Regardless of the fact that competent physicians all over the country declared the story impossible, newspapers continued to publish the event until an actual unmasking occurred.

Another point of interest is the way in which newspapers continue to perpetuate such ancient medical superstitions as, for example, the belief that prenatal impressions of the mother may mark the child. There are, of course, books of instruction for prospective mothers which suggest that they visit the Art Institute and gaze upon beautiful paintings and sculpture in order that the forthcoming progeny may resemble Venus of Praxiteles or the god Adonis. But there is no basis in scientific fact for such a belief. Nevertheless one frequently sees in his newspaper such items as the following: from the Modesto, California, *News:*

> A young French woman testifying in an alleged bigamy case here today said that a month

before the birth of her child, her husband gave her a black eye. The baby was born with a black eye.

II

It is apparent then that one of the great faults in the reporting of medical news is lack of accuracy in such matters as terminology, spelling and definition. Another apparent fault is the printing of any news item of scientific interest without attempting to check in some manner its reliability or accuracy or conformity with scientific fact. It is clearly the duty of the writer of a piece of news to verify the spelling of the terms he uses, and to make sure that such terms actually exist and are used in their correct meanings. The editor shares with him the responsibility for printing a story that exploits a medical discovery that has no basis in scientific fact or that is founded on poorly substantial evidence. No doubt, much of the difficulty is traceable to the fact that newspapers have not been and are not even today equipped with competent medical men to pass on medical news. One seems safe in assuming that the newspaper reports of medical matters represent the actual knowledge of the news gatherers and purveyors, largely in the past men who have obtained their knowledge of journalism only in the bitter

school of experience and not in the classroom, who have passed from copy boy to reporter, from the sport page to literary criticism, from police news to the drama. To establish the point, let us consider one of America's confessedly greatest newspaper men, a leader in the newspaper field, whose journalistic jewels are daily syndicated to millions of readers. Let us see what the dispenser of what have kindly been called "Brisbanalities" does with a matter of medical news! Here is an example:

> Tears are deadly to germs, says an English scientist. One tear in a test tube with millions of bacteria dissolved them all. Nature has many ways of protecting the body. There is salt in tears, and salt is one of the greatest protectors. Salt, acid and violent shaking are deadly to germs. When you sneeze you kill germs, just as you would be killed if an elephant stepped on you.

There is a specimen of a complete Brisbanism. First, the statement of an unspecified English scientist, that one tear dissolves a million germs, absolutely untrue; next, the information that salt is one of the greatest protectors of the body against germs, also untrue; and then the alarming comparison of a sneeze to an elephant. That is the real Brisbane touch.

Again Mr. Brisbane writes:

> Science is powerful. It can help you if you will let it. Keep away from quacks of all kinds, including quacks that think they can cure you by talking to you about it—unless the latter makes you cheerful.
>
> Next to X-rays and the surgeon's knife comes cheerfulness. The energy of the blood destroys cancer in many cases. Cheerfulness increases blood energy.

There you see how by pure logic, Mr. Brisbane leads us to the cause and cure of cancer, sought unsuccessfully as yet by scientists for many years.

And in another issue:

> A very long needle is used to inject adrenalin right into the heart. The adrenalin, made from one of the mysterious glands of the body located in the pancreas, is injected into the tissues of the heart itself.

Adrenalin, Mr. Brisbane should have discovered, comes from the adrenal gland just above the kidney, and has nothing to do with the pancreas in the matter of its origin.

Quite recently, commenting on the death of President Harding, the inspired one said:

> When you hear that a well-known man is ill, observe the doctors and how they feed him. Many a man dies because doctors don't know enough to take food from a man fighting high temperature.
>
> For your own sake, remember that the body cannot eliminate poisons and assimilate nourishment at the same time. Elimination and assimilation don't go together.
>
> While your temperature is above normal, take nothing but water—plenty of it—and your temperature will come down probably.

Thus Doctor Brisbane! Needless to say the latter advice is unscientific and absolutely pernicious. But every day hundreds of thousands read his disquisitions on everything from the Dempsey-Firpo fight to the Einstein theory and accept them as gospel truth. I do not know what his batting average may be in other fields. In medicine, he seems to average one correct hit in about twenty trips to the plate.

CHAPTER XIV

THE SCIENCE OF HEALING

THE growth of scientific healing is as romantic a series of tales as ever captured the attention of a novelist; it is filled with dramatic incident. What could be more dramatic than the struggle of Paul Ehrlich until his success was crowned by the discovery of arsphenamin? What great climax in human life ever approached the scene in which Pasteur demonstrated to the doubters of France that the sheep that had been inoculated lived and those that had not had preventive injections against anthrax died? Were ever human sympathies more touched than by the story of the fight to get antitoxin into stricken Nome? And equally dramatic, though perhaps more tragic, is the story of the discoverer whose new preparation seems to him to be a marvelous specific, but who passes at last, after several years of trial, into the oblivion that is the fate of those who fail. It may be true that the romance of medicine, and especially the history of drug treatment, will show many more failures than successes. Within our own memories are the hundreds of cures

for tuberculosis, for cancer, for locomotor ataxia and for general paralysis that are now buried beneath tons of soil with victims that they were to cure and, in some cases, with the dollars of the manufacturers who thought they would cure. But above them rise the monuments to diphtheria antitoxin, to salvarsan or "606," to quinin, to digitalis, to ether, to the local anesthetics, to morphin and to the many other remedies that have alleviated pain and illness and postponed death.

In writing the history of our progress in scientific healing, we like to believe that a proper attitude toward the claims made for remedies began to develop with the beginning of the twentieth century. Indeed, a study of the origin of the phrase "therapeutic nihilism" would probably show the beginning of its vogue at about that time. But therapeutic skepticism is not the property of any recent or single period in our history. There were the high priests of Israel, who doubted the healing virtues of the golden calf; there were the biting aphorisms of Celsus, who questioned what he could not see; there were even the experiments of Albrecht von Haller, who anticipated Hahnemann in the desire to test drugs to see what they would do before admitting that they would do anything. In fact, the skepticism of our contemporary period is not an attempt to destroy belief in the

value of drugs, but an attack on an outrageous commercialism in the sale of remedies, which unfortunately, perhaps, serves also to undermine to some extent belief in all drug therapy. It seems likely, rather, that the growth of therapeutic nihilism in general was the result of the great advance in our knowledge of the causes and pathology of disease and the increasing attention paid to these matters rather than to treatment, in our medical schools. Today there is a call for the return of that older type of physician in family practice whose primary function was the alleviation of pain and the healing of illness.

There seems to be inherent within the cells of all living substances a "will to live," a tendency toward recovery from disease, the *vis medicatrix naturæ*. This salutary activity of the organism is the secret of the success of those cults that occupy the twilight zone of medical practice. "The vis medicatrix," says Sainsbury, "has floated many a false system of medicine, including some very heavy craft: *it* has cured, *they* have claimed." On the *vis medicatrix* are based the alleged successes of such cults as chiropractic and Christian science, of theosophy, of Couéism, of zonetherapy and, indeed, of every cult that is essentially a system of treatment based on a single idea as to the causation of disease without

relation to the proved facts of medical science. These cults, known as the non-medical, or drugless, cults, have delayed scientific progress through their attacks on scientific experimentation, particularly on that which involves the use of animals, and unquestionably have been responsible for the spread of epidemics and for a certain proportion of mortality from disease. Granted that there are instances in which the wrong use of drugs may have hastened death, there unquestionably are many more instances in which the lack of the medicament—the failure to apply the remedies of science—has resulted in anguish to the sufferer and in the spread of disease.

There was a time when the treatment of disease was dominated by faith, by incantations, by charms and by symbolism. In the dark ages of medicine the words that went with the concoctions of dried beetles, snake oil, mandrake root and herbs brewed in the light of the moon at midnight were considered quite as important as the remedies themselves. From this we passed into the age of the "dreck apotheke," with its combinations of all the noxious excretions and secretions known to man. Against this Hahnemann reacted, and no doubt the homeopath with his dilutions of drugs to the two millionth part did less harm than Rush's thunderbolt with its massive doses of calomel and jalap. William With-

ering had, of course, established digitalis; Jenner had established smallpox vaccination; mercury had been found for syphilis—a true science of pharmacology was beginning to win its way. A Lister showed the importance of antisepsis, and the possible harmfulness of too rigid antisepsis was replaced, through application of the discoveries of Pasteur, by a satisfactory asepsis. And so we came to the new era of therapy introduced by Paul Ehrlich, the era of specific chemotherapy.

In this transition over the centuries, the position of the physician in relation to his patient changed also. Look at the pictures drawn by famous artists. Here is the doctor of Luke Fildes' famous picture; he sits at the bedside of the child dying of diphtheria. Possibly he will decide a little later to do a tracheotomy, to try to suck out the membrane, or to prescribe a little tincture of iron. He is, after all, doing no harm. But if the picture were of our day he would be doing a great deal of harm by his inactivity. He ought to be taking a throat culture to confirm his diagnosis of diphtheria, and he ought to be injecting diphtheria antitoxin, and possibly putting in his spare time by immunizing the other members of the family, who ought not to be in the room anyway. The aphorism "Primum non nocere" means "do no harm by withholding a proper

remedy" just as much as it concerns the giving of a harmful remedy. Let us assume, for example, that one withholds atropin in an inflammation of the eye, and thereby permits permanent scarring and loss of eyesight. Here the one responsible for treatment does as much harm as he would have done if he had given the wrong drug. There is a need for "positive treatment," which means the employment at the earliest possible moment of those remedies which have been established as beneficial in the condition concerned.

As one looks over the accomplishments of the past, one need feel no pessimism regarding the future of scientific medical treatment. Such harm as is not inherent in human nature itself is slowly but surely being eliminated from the manufacture, the sale and the use of medicinal remedies. More and more we are beginning to realize that the prime function of the physician is not the prevention of death, for death can never be prevented completely, and ultimately the mortality will always be 100 per cent.; not the raising from the dead of tissues or of human beings that have succumbed, for outside of Biblical legend and the phantasies of those who claim there is no disease and who heal by the mind alone or by the laying on of hands, there is no raising from the dead—rather, the function of the physician is to

range himself on the side of life, by seeking to establish those conditions which are most favorable to life. These conditions he establishes through the employment of all those agencies which, scientific experiment has taught him, have the power to modify the actions of human tissues. These agencies include not only the drugs and biologic preparations of materia medica but also heat, cold, massage, electricity, water, sunlight and the mental suggestion of our therapeutics. With these agencies he aids the power within the body to overcome disease, or he so modifies the constitutions and environment of the bacterial organisms that attack mankind that they depart either their lives or his system.

The outlook for the future in the control of disease seems to depend, therefore, first on the acquiring of more knowledge as to the biology and physiology of man, and particularly of the individual cells within the body of man; and, secondly, on a study of the natural history of disease, including particularly the biology, physiology and chemistry of the bacterial organisms that produce disease.

The finding of dye substances that are specific for certain bacteria, of antitoxins specific for certain diseases, of glandular extracts that replace missing secretions and activate latent cells to action; of substances like the phthaleins that search out certain

tissues, as the liver or the kidney, or that carry antiseptic actions to certain secretions as in the case of methenamin or hexylresorcinol—these are refinements of therapeutic science that are as astounding as the radio and the wireless telegraph.

In his "Principia Therapeutica," which is to the practitioner a sort of guidebook through the Hades of therapeutic fallacies, Sainsbury opens with a dialogue between "Therapeutics" and "Pathology." The scene is the postmortem room, and the pathologist is busily engaged in examining a dead body. With the typical cynicism of the pathologist—the analytic philosopher who renders the final materialistic verdict—this necropsist begins by wondering at the faith of the physician in his drugs. Digitalis, strophanthus and spartein had been given; yet the aortic valve was narrowed, and the valves were fused and thickened. "Did you think to soften them?" asks the pathologist. The fibers of the heart muscle were stretched and degenerated. "Did you propose to make new fibers to overcome the destruction?" asks the pathologist. Fortunately, the physician is able to make a most convincing answer. "My attention took note of this only," he says, "that the heart did beat, and the circulation of the blood was maintained, however imperfectly. This rhythmic contraction of the muscle fiber had no sort of rela-

tion to those elements of degeneration within its substance—they were of death; but this was a living act, maintained in spite of all and every adverse circumstance, and to aid and abet this vital residuum, setting aside all thought of the elements of degeneration, mere mortal remains fit only for interment—this was my one endeavor."

This service to the living, this utilization of every power and every atom of scientific knowledge available to aid the power within the human body in its fight against death, commands all that the physician has to give of his learning and of his spirit. With such a spirit we may approach nearer and nearer to that time when the rebuke of Paracelsus to the faint-hearted physician may be warranted in fullest measure.

> "Nie rede der Arzt, die Krankheit ist unheilbar—er lügt da Gott an, unsern Schöpfer; er belügt die Natur mit ihrer Ueberfülle von verhüllten Kräften und Veränderlichkeiten."
>
> "Never must the physician say, the disease is incurable. By that admission he denies God, our Creator; he doubts Nature with her profuseness of hidden powers and mysteries."

THE END